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FILE COVERS 1907 - 28 Mar 2003  VOL 138 ISS 14
FILE LAST UPDATED: 27 Mar 2003  (20030327/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d que l41 -  strategy - using polymers from applicants citation to
                look for art
L8          21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
                BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
                4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
                7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
                OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
                /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
                80137-67-3/BI)                                  cpds from inventors work in CAS citation
L14          6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA   has rings
L15         15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16          2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"  → ceramics
L17         13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN          Bio-polymers
L21          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22         10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23     128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L24      16476 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE+PFT/CT
L25       4422 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE/CT
L26       2779 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE DISTRIBUTION+PFT/CT

L28      12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)                 ceramics
L32      10396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR HYALURONIC ACID/OBI
L33       8590 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CHITIN/OBI OR L20
L34       7774 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ALGINIC ACID/OBI OR L21
L36       7097 SEA FILE=HCAPLUS ABB=ON  PLU=ON  BIOPOLYMERS/CT
L37      53258 SEA FILE=HCAPLUS ABB=ON  PLU=ON  COLLAGEN/OBI
L38       4310 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ELASTIN/OBI
L39     140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L40       1653 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L23 OR L39 OR L28) AND ((L36
                OR L37 OR L38) OR (L32 OR L33 OR L34))
L41         11 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L40 AND (L24 OR L25 OR L26)   11 cites
```

ca, P cpds

cyclic polyesters

CT = controlled terminology

PFT = old, new & used for terms

obi = old basic index

=> d que 143 same strategy as L41

```
L8          21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
               BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
               4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
               7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
               OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
               /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
               80137-67-3/BI)
L14          6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15         15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16          2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17         13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22         10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23     128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L28      12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
               OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
               OR "TETRACALCIUM PHOSPHATE"/CT)
L32      10396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR HYALURONIC ACID/OBI
L33       8590 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CHITIN/OBI OR L20
L34       7774 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ALGINIC ACID/OBI OR L21
L36       7097 SEA FILE=HCAPLUS ABB=ON  PLU=ON  BIOPOLYMERS/CT
L37      53258 SEA FILE=HCAPLUS ABB=ON  PLU=ON  COLLAGEN/OBI
L38       4310 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ELASTIN/OBI
L39     140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L40       1653 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L23 OR L39 OR L28) AND ((L36
               OR L37 OR L38) OR (L32 OR L33 OR L34))
L42         35 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L40 AND SCAFFOLD?
L43         17 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L42 AND (PORE OR POROS? OR
               POROUS?)
```

17 cites

} emphasizing pores, scaffold

=> d que 148 same strategy as L41

```
L8          21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
               BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
               4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
               7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
               OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
               /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
               80137-67-3/BI)
L14          6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15         15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16          2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17         13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22         10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23     128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L24      16476 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE+PFT/CT
L25       4422 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE/CT
L26       2779 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE DISTRIBUTION+PFT/CT

L28      12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
               OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
```

picks up lyophilization

```
              OR "TETRACALCIUM PHOSPHATE"/CT)
L30         4442 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FREEZE DRYING+PFT/CT
L31       302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L39       140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L44          628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45         7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
              OR L28)
L46           43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 AND (L24 OR L25 OR L26)
L48            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L30 AND L46
```

emphasis on these concepts

1 cite (applicant)

=> d que l51 same strategy as L41

```
L8           21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
              BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
              4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
              7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
              OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
              /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
              80137-67-3/BI)
L14           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15          15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17          13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22          10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23      128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L24       16476 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE+PFT/CT
L25        4422 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE/CT
L26        2779 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE DISTRIBUTION+PFT/CT

L27       24191 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "PROSTHETIC MATERIALS AND
              PROSTHETICS"+PFT/CT
L28       12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
              OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
              OR "TETRACALCIUM PHOSPHATE"/CT)
L31       302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L39       140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L44          628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45         7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
              OR L28)
L46           43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 AND (L24 OR L25 OR L26)
L49           14 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L27 AND L46
L50       130930 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GROWTH FACTOR
L51            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L50 AND L49
```

NT = narrower terms

5 cites

=> d que l56 same strategy as L41

```
L8           21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
              BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
              4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
              7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
              OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
              /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
              80137-67-3/BI)
L14           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15          15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
```

```
L16           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17          13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22          10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23      128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L28       12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)
L29       35961 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "MOLDING OF PLASTICS AND
                RUBBERS"+PFT,NT/CT
L30        4442 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FREEZE DRYING+PFT/CT
L31      302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L39      140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L44         628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45        7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
                OR L28)
L55         298 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 AND (L29 OR L30)
L56          10 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L55 AND (PORE OR POROS? OR
                POROUS?)
```

methods of making

10 cites

=> d que l61

```
L8           21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
                BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
                4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
                7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
                OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
                /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
                80137-67-3/BI)
L14           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15          15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17          13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22          10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23      128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L26        2779 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE DISTRIBUTION+PFT/CT

L28       12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)
L31      302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L39      140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L44         628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45        7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
                OR L28)
L57          65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 AND SCAFFOLD?
L58          43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L57 AND (PORE OR POROS? OR
                POROUS?)
L61           3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L58 AND L26
```

3 cites

=> d que l62

```
L8           21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
```

```
                BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
                4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
                7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
                OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
                /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
                80137-67-3/BI)
L14             6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15            15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16             2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17            13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22            10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23        128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L28         12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)
L30          4442 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FREEZE DRYING+PFT/CT
L31        302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L39        140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L44           628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45          7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
                OR L28)
L57            65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 AND SCAFFOLD?
L58            43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L57 AND (PORE OR POROS? OR
                POROUS?)
L62             2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L58 AND (L30 OR INJECT?)
```

2 cites

```
=> d que l64

L8             21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
                BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
                4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
                7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
                OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
                /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
                80137-67-3/BI)
L14             6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15            15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16             2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17            13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22            10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23        128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L26          2779 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PORE SIZE DISTRIBUTION+PFT/CT

L28         12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)
L30          4442 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FREEZE DRYING+PFT/CT
L31        302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L39        140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L44           628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45          7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
                OR L28)
L57            65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 AND SCAFFOLD?
```

```
L58          43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L57 AND (PORE OR POROS? OR
                POROUS?)
L61           3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L58 AND L26
L62           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L58 AND (L30 OR INJECT?)
L63          38 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L58 NOT (L61 OR L62)
L64           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L63 AND INTERPHASE
```

1 cite

```
=> d que l66

L8           21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
                BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
                4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
                7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
                OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
                /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
                80137-67-3/BI)
L14           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15          15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17          13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22          10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23      128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L28       12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)
L30        4442 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FREEZE DRYING+PFT/CT
L31      302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L32       10396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR HYALURONIC ACID/OBI
L33        8590 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CHITIN/OBI OR L20
L34        7774 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ALGINIC ACID/OBI OR L21
L36        7097 SEA FILE=HCAPLUS ABB=ON  PLU=ON  BIOPOLYMERS/CT
L37       53258 SEA FILE=HCAPLUS ABB=ON  PLU=ON  COLLAGEN/OBI
L38        4310 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ELASTIN/OBI
L39      140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L40        1653 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L23 OR L39 OR L28) AND ((L36
                OR L37 OR L38) OR (L32 OR L33 OR L34))
L44         628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45        7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
                OR L28)
L65          11 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L40 OR L45) AND L30
L66           4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L65 AND (FOAM? OR ?SPONGE?)
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4 cites

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=> d que l72

L8           21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
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                4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
                7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
                OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
                /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
                80137-67-3/BI)
L14           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15          15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17          13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
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L19           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22          10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23      128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L28       12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)
L31      302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L32       10396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR HYALURONIC ACID/OBI
L33        8590 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CHITIN/OBI OR L20
L34        7774 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ALGINIC ACID/OBI OR L21
L36        7097 SEA FILE=HCAPLUS ABB=ON  PLU=ON  BIOPOLYMERS/CT
L37       53258 SEA FILE=HCAPLUS ABB=ON  PLU=ON  COLLAGEN/OBI
L38        4310 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ELASTIN/OBI
L39      140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
L40        1653 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L23 OR L39 OR L28) AND ((L36
                OR L37 OR L38) OR (L32 OR L33 OR L34))
L44         628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45        7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
                OR L28)
L68        2137 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L40 OR L45) AND (?PHASE OR
                LAYER?)
L69         211 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L68 AND (PORE OR POROS? OR
                POROUS?)
L70          64 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L69 AND (SUPPORT OR SCAFFOLD?)

L72          17 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L70 AND 63-7/SC,SX
```

17 cites

section for pharmaceuticals

```
=> d que l73

L8           21 SEA FILE=REGISTRY ABB=ON  PLU=ON  (129771-65-9/BI OR 1305-78-8/
                BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
                4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
                7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
                OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
                /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
                80137-67-3/BI)
L14           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND RSD/FA
L15          15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT L14
L16           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND "APATITE"
L17          13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L19           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYALURONIC ACID/CN
L20           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITIN/CN
L21           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ALGINIC ACID/CN
L22          10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 NOT (L19 OR L20 OR L21)
L23      128712 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CERAMICS+PFT/CT
L28       12789 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("CALCIUM METAPHOSPHATE"/CT
                OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
                OR "TETRACALCIUM PHOSPHATE"/CT)
L30        4442 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FREEZE DRYING+PFT/CT
L31      302284 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POLYESTERS+NT1/CT
L32       10396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR HYALURONIC ACID/OBI
L33        8590 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CHITIN/OBI OR L20
L34        7774 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ALGINIC ACID/OBI OR L21
L36        7097 SEA FILE=HCAPLUS ABB=ON  PLU=ON  BIOPOLYMERS/CT
L37       53258 SEA FILE=HCAPLUS ABB=ON  PLU=ON  COLLAGEN/OBI
L38        4310 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ELASTIN/OBI
L39      140602 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L22
```

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L40        1653 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L23 OR L39 OR L28) AND ((L36
                OR L37 OR L38) OR (L32 OR L33 OR L34))
L44         628 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14
L45        7910 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L44 OR L31) AND  (L23 OR L39
                OR L28)
L68        2137 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L40 OR L45) AND (?PHASE OR
                LAYER?)
L69         211 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L68 AND (PORE OR POROS? OR
                POROUS?)
L70          64 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L69 AND (SUPPORT OR SCAFFOLD?)

L72          17 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L70 AND 63-7/SC,SX
L73           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L72 AND (L30 OR INJECT? OR
                (LYOPH? OR ?SPONG?))
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2 cites

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=> s l41 or l43 or l48 or l51 or l56 or l61 or l62 or l64 or l66 or l72-73

L76          46 L41 OR L43 OR L48 OR L51 OR L56 OR L61 OR L62 OR L64 OR L66 OR
                (L72 OR L73)
```

46 cites total

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=> d ibib abs hitstr 1

L76  ANSWER 1 OF 46  HCAPLUS  COPYRIGHT 2003 ACS
ACCESSION NUMBER:         2003:202996  HCAPLUS
TITLE:                    Treated fibrous porous material and
                          composites therefrom and their preparation methods and
                          products
INVENTOR(S):              Halahmi, Izhar; Gross, Mike; Jacobs, Ian Leonard;
                          Kadosh, Gaby
PATENT ASSIGNEE(S):       Israel
SOURCE:                   U.S. Pat. Appl. Publ., 20 pp., Cont.-in-part of U.S.
                          Ser. No. 813,876.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   2
PATENT INFORMATION:

     PATENT NO.        KIND  DATE           APPLICATION NO.   DATE
     ----------------  ----  --------       ----------------  --------
     US 2003046772      A1   20030313       US 2002-102205    20020321
PRIORITY APPLN. INFO.:                   US 2001-813876    A2 20010322
AB   Fibrous porous material with reactive sites and defined
     nanostructure, such as cellulose, lignin, synthetic ceramics, kaolin,
     etc., is treated with a low viscosity org. soln., which comprises org.
     solvent selected from arom. or aliph. ether, ester, ketone, halogenated
     solvent, or alc., an isocyanate component, unsatd. resin, such as hydroxy,
     epoxy, or carboxyl-contg. polyester, and, optionally addnl. additives like
     org. peroxide, styrene, vinyl monomers, organosilane, organozirconium, or
     organotitanium, to obtain fibrous porous material that has
     reduced no. of reactive sites and surface area and higher nitrogen content
     and arom. groups compared to the untreated material.  Thus, coupling agent
     composed of hydroxy/carboxyl-contg. unsatd. polyester resins 2.37 kg, MDI
     oligomer 120 g, dicumyl peroxide 36 g, and Bu acetate 630 g, was mixed
     with 25.7 Kg recycled plastic chips composed of 90 % HDPE and 5 % PP,
     heated to 135.degree. under 10 atm. for 5 min after removing Bu acetate to
     create a packed preform, which was then heated to 150.degree. for 45 min
     and pressed at 180.degree. at 45 atm to receive a composite with flexural
     modulus of 2550 MPa, flexural strength of 45 MPa and water absorption <0.5
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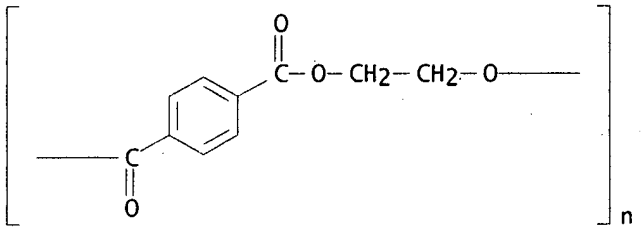
%.
IT INDEXING IN PROGRESS
IT **25038-59-9**, PET polymer
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(composites made from treated fibrous **porous** cellulosic materials)
RN 25038-59-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



=> d ibib abs hitstr 2

L76 ANSWER 2 OF 46 HCAPLUS COPYRIGHT 2003 ACS applicant
ACCESSION NUMBER: 2003:5525 HCAPLUS
DOCUMENT NUMBER: 138:61392
TITLE: Composite **scaffold** with a fixation device for the repair and regeneration of tissue
INVENTOR(S): Brown, Kelly R.; Zimmerman, Mark C.; Li, Yufu
PATENT ASSIGNEE(S): Ethicon, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 12 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003004578	A1	20030102	US 2001-893813	20010628
EP 1277450	A2	20030122	EP 2002-254534	20020627

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 2001-893813 A 20010628

AB A prosthetic implant having a tissue **scaffold** and a fixation device with a **scaffold support** and an anchoring post. The anchoring post extends from a surface of the **scaffold support** at a selected angle with the **scaffold support** embedded within the **scaffold**. The **scaffold** has a **porous** ceramic **phase** and a **porous** polymer **phase**. The polymer is **foamed** while in soln. that is infused in the **pores** of the ceramic to create a **interphase** junction of interlocked **porous** materials and embedding the **scaffold support** portion of the fixation device. The preferred method for **foaming** is by **lyophilization**. The **scaffold** may be infused or coated

with a variety of bioactive materials to induce ingrowth or to release a medicament. The multilayered **porous scaffold** can mimic the morphol. of an injured tissue junction with a gradient morphol. and cell compn. A soln. of the polymer to be **lyophilized** into a **foam** was prepd., composed of a 95/5 wt. ratio of 1,4-dioxane to 35/65 PCL/PGA (.epsilon.-caprolactone-glycolide copolymer). The soln. was heated and the soln. was filtered. A ceramic tablet of **porous** hydroxyapatite was fabricated. A bioabsorbable fixation component was manufd. by using an **injection** molding process. The polymer used to manuf. the fixation components was a copolymer of 85% PLA and 15% PGA (85/15 PLA/PGA). The fixation component proposed by the foregoing process was threaded through the 2-mm hole prefabricated in the ceramic tablet.

IT **1305-78-8**, Calcium oxide, biological studies **1306-05-4**, Fluorapatite (Ca5F(PO4)3) **1306-06-5**, Hydroxyapatite **7757-87-1 7758-87-4**, Tricalcium phosphate **7778-18-9**, Calcium sulfate **7789-75-5**, Calcium fluoride, biological studies **10103-46-5**, Calcium phosphate **13767-12-9**, Tetracalcium phosphate
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ceramic; composite **scaffold** with fixation device for repair and regeneration of tissue)

RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

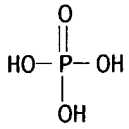
RN 1306-05-4 HCAPLUS
CN Fluorapatite (Ca5F(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
F	1	14762-94-8
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

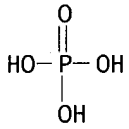
Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7757-87-1 HCAPLUS
CN Phosphoric acid, magnesium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



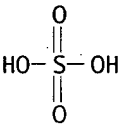
3/2 Mg

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



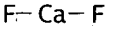
3/2 Ca

RN 7778-18-9 HCAPLUS
CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)

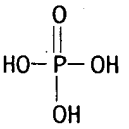


Ca

RN 7789-75-5 HCAPLUS
CN Calcium fluoride (CaF2) (9CI) (CA INDEX NAME)

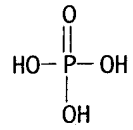


RN 10103-46-5 HCAPLUS
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



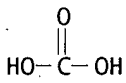
x Ca

RN 13767-12-9 HCAPLUS
CN Phosphoric acid, calcium salt (3:4) (8CI, 9CI) (CA INDEX NAME)



4/3 Ca

IT **471-34-1**, Calcium carbonate, biological studies **30846-39-0**
, Glycolide-L-lactide copolymer **41706-81-4**, .epsilon.-
Caprolactone-glycolide copolymer **65408-67-5**,
.epsilon.-Caprolactone-L-lactide copolymer **80137-67-3**,
.epsilon.-Caprolactone-lactic acid copolymer **129771-65-9**,
.epsilon.-Caprolactone-D-lactide copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite **scaffold** with fixation device for repair and regeneration of tissue)
RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



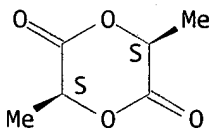
Ca

RN 30846-39-0 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

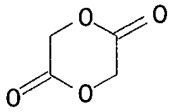
CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

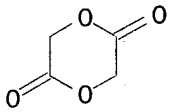
CRN 502-97-6
CMF C4 H4 O4



RN 41706-81-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

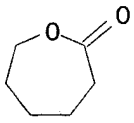
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

CRN 502-44-3
CMF C6 H10 O2

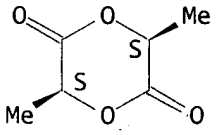


RN 65408-67-5 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

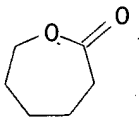
CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

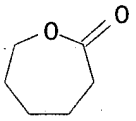
CRN 502-44-3
CMF C6 H10 O2



RN 80137-67-3 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

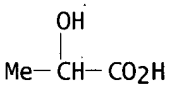
CM 1

CRN 502-44-3
CMF C6 H10 O2



CM 2

CRN 50-21-5
CMF C3 H6 O3

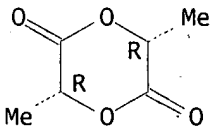


RN 129771-65-9 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

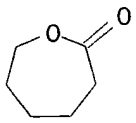
CRN 13076-17-0
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-44-3
CMF C6 H10 O2



IT **1398-61-4, Chitin 9004-61-9, Hyaluronic acid 9005-32-7, Alginic acid**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite **scaffold** with fixation device for repair and regeneration of tissue)
RN 1398-61-4 HCAPLUS
CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-32-7 HCAPLUS
CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

=> d ibib abs hitstr 3

L76 ANSWER 3 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2003:5239 HCAPLUS
DOCUMENT NUMBER: 138:61423
TITLE: **Porous** ceramic/**porous** polymer layered **scaffolds** for the repair and regeneration of tissue
INVENTOR(S): Brown, Kelly R.; Yuan, Jenny J.; Li, Yufu; Zimmerman, Mark C.
PATENT ASSIGNEE(S): Ethicon, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 17 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

applicant

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003003127	A1	20030102	US 2001-892993	20010627
EP 1270025	A2	20030102	EP 2002-254457	20020626
EP 1270025	A3	20030326		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
PRIORITY APPLN. INFO.: US 2001-892993 A 20010627
AB A composite **scaffold** with a **porous** ceramic phase and a **porous** polymer phase. The polymer is foamed while in soln. that is infused in the **pores** of the ceramic to create a **interphase** junction of interlocked **porous** materials. The preferred method for foaming is by lyophilization. The **scaffold** may be infused or coated with a variety of bioactive materials to induce ingrowth or to release a medicament. The multi-layered **porous scaffold** can mimic the morphol.

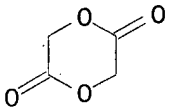
of an injured tissue junction with a gradient morphol. and cell compn., such as articular cartilage. A bilayered **scaffold** is comprised of a **porous** polymer phase (caprolactone-dioxanone copolymer) and **porous** ceramic phase.

IT **41706-81-4P**, Caprolactone-glycolide copolymer
RL: DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**porous** ceramic/**porous** polymer layered **scaffolds** for the repair and regeneration of tissue)

RN 41706-81-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

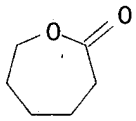
CM 1

CRN 502-97-6
CMF C4 H4 O4



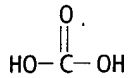
CM 2

CRN 502-44-3
CMF C6 H10 O2



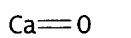
IT **471-34-1**, Calcium carbonate, biological studies **1305-78-8**, Calcium oxide, biological studies **1306-01-0**, Tetracalcium phosphate **1306-05-4**, Fluorapatite (Ca5F(PO4)3) **1306-06-5**, Hydroxyapatite **1398-61-4**, **Chitin 7758-87-4**, Tricalcium phosphate **7778-18-9**, Calcium sulfate **7789-75-5**, Calcium fluoride, biological studies **9004-61-9**, **Hyaluronic acid 9005-32-7**, **Alginic acid 25618-23-9**, Calcium magnesium phosphate **65408-67-5**, Caprolactone-L-lactide copolymer **70524-20-8**, Caprolactone-lactide copolymer **129771-65-9**, 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**porous** ceramic/**porous** polymer layered **scaffolds** for the repair and regeneration of tissue)

RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)



RN 1306-01-0 HCAPLUS
CN Calcium oxide phosphate (Ca4O(PO4)2) (7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
O4P	2	14265-44-2
Ca	4	7440-70-2

RN 1306-05-4 HCAPLUS
CN Fluorapatite (Ca5F(PO4)3) (9CI) (CA INDEX NAME)

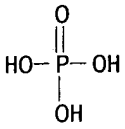
Component	Ratio	Component Registry Number
F	1	14762-94-8
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

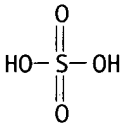
RN 1398-61-4 HCAPLUS
CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



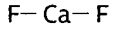
3/2 Ca

RN 7778-18-9 HCAPLUS
CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

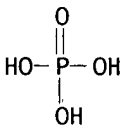
RN 7789-75-5 HCAPLUS
CN Calcium fluoride (CaF2) (9CI) (CA INDEX NAME)



RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-32-7 HCAPLUS
CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 25618-23-9 HCAPLUS
CN Phosphoric acid, calcium magnesium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

x Mg

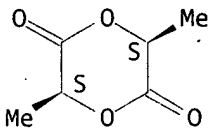
RN 65408-67-5 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

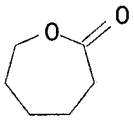
CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

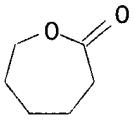
CRN 502-44-3
CMF C6 H10 O2



RN 70524-20-8 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

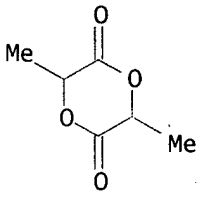
CM 1

CRN 502-44-3
CMF C6 H10 O2



CM 2

CRN 95-96-5
CMF C6 H8 O4

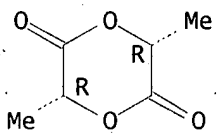


RN 129771-65-9 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

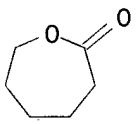
CRN 13076-17-0
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-44-3
CMF C6 H10 O2



=> d ibib abs hitstr 4

L76 ANSWER 4 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:910321 HCAPLUS
DOCUMENT NUMBER: 138:150846
TITLE: Effects of intermittent hydromechanics on the differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics
AUTHOR(S): Tang, Kai; Dang, Gengting; Guo, Zhaoqing
CORPORATE SOURCE: Department of Orthopedics, Third Hospital, Peking University, Beijing, 100083, Peop. Rep. China
SOURCE: Zhonghua Yixue Zazhi (Beijing, China) (2002), 82(10), 665-668
CODEN: CHHTAT; ISSN: 0376-2491
PUBLISHER: Zhonghua Yixue Zazhishe
DOCUMENT TYPE: Journal

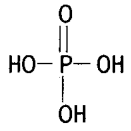
LANGUAGE: Chinese

AB The effects of the intermittent hydromech. stimulation on the differentiation and function of the bone marrow stromal derived-osteoblasts in the **porous** Ca3(PO4)2 ceramics were studied. Rat bone marrow stromal derived-osteoblasts were seeded into **porous** Ca3(PO4)2 ceramic **scaffolds** at cell d. of 1 x 106 cells cm-3. The cells-ceramics constructs were cultured under rotary condition for 1 h at 4 h interval. After 4, 7, and 14 d cultivation, the osteoblastic phenotype markers (alk. phosphatase (ALP) activity, type I collagen, osteocalcin, osteopontin, osteonectin, and bone sialoprotein mRNA expression levels) were analyzed by biochem. methods and quant. RT-PCR technique. Static cell culture as control. Under rotary cell culture condition, the ALP activity and expression of Type I collagen mRNA were increased remarkably and reached the peak levels at 7 d, and expressions of other four markers mRNA occurred at 4 d and reached the peak levels at 7 d, then down-regulated at 14 d. Under static cell culture as control, the ALP activity and expression of Type I collagen mRNA were increased gradually and reached the peak levels at 14 d, and expressions of other four markers mRNA occurred at 7 d and reached the peak levels at 14 d. The intermittent hydromech. stimulation could promote the bone marrow stromal derived-osteoblasts differentiation and function which cultured in the **porous** Ca3(PO4)2 ceramics in vitro.

IT **10103-46-5**, Calcium phosphate
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



Ox Ca

=> d kwic 4

L76 ANSWER 4 OF 46 HCAPLUS COPYRIGHT 2003 ACS

TI Effects of intermittent hydromechanics on the differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics

AB The effects of the intermittent hydromech. stimulation on the differentiation and function of the bone marrow stromal derived-osteoblasts in the **porous** Ca3(PO4)2 ceramics were studied. Rat bone marrow stromal derived-osteoblasts were seeded into **porous** Ca3(PO4)2 ceramic **scaffolds** at cell d. of 1 x 106 cells cm-3. The cells-ceramics constructs were cultured under rotary condition for 1 h. . . 14 d. The intermittent hydromech. stimulation could promote the bone marrow stromal derived-osteoblasts differentiation and function which cultured in the **porous** Ca3(PO4)2 ceramics in

vitro.
ST **collagen** bone marrow osteoblast cell culture differentiation hydromech stress
IT Sialoglycoproteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(BSP II (bone sialoprotein II); effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)
IT Animal tissue culture
Cell differentiation
Ceramics
Osteoblast
Stress, mechanical
(effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)
IT Osteocalcins
Osteonectin
Osteopontin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)
IT Bone marrow
(stroma; effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)
IT **Collagens**, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type I; effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)
IT 9001-78-9
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)
IT **10103-46-5**, Calcium phosphate
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)

=> d ibib abs hitstr kwic 5

L76 ANSWER 5 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:813971 HCAPLUS
DOCUMENT NUMBER: 137:316131
TITLE: Engineered regenerative biostructures for implantation into a human body as a bone substitute
INVENTOR(S): Beam, Heather Ann; Chesmel, Kathleen D.; Bradbury, Thomas J.; Gaylo, Christopher M.; Litwak, Alfred Anthony; Liu, Qing; Materna, Peter Albert; Monkhouse, Donald; Patterson, Jennifer; Pryor, Timothy J.; Saini, Sunil; Surprenant, Henry Leon; Wang, Chen-Chau; West, Thomas George; Yoo, Jaedeok
PATENT ASSIGNEE(S): Therics, Inc., USA
SOURCE: PCT Int. Appl., 173 pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002083194	A1	20021024	WO 2002-US11515	20020412

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-283564P P 20010412

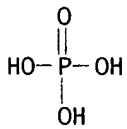
AB An engineered regenerative biostructure (erb) for implantation into a human body as a bone substitute, which includes an internal microstructure, mesostructure and/or macrostructure to provide improved bone in-growth, and methods for making the erb. Under one aspect of the invention, the biostructure has resorbable and nonresorbable regions. Under another aspect of the invention, the biostructure is constructed of hydroxyapatite, tricalcium phosphate and/or demineralized bone. Under yet another aspect of the invention, the porous biostructure is partially or fully infused with a resorbable, nonresorbable or dissolvable material.

IT **1306-06-5**, Hydroxyapatite **7758-87-4**, Tricalcium phosphate **10103-46-5**, Calcium phosphate
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineered regenerative biostructures for implantation into a human body as a bone substitute)

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

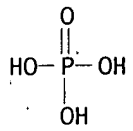
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



●3/2 Ca

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Bone
Human
Pearly materials
Pore size
(engineered regenerative biostructures for implantation into a human body as a bone substitute)

IT **Collagens**, biological studies
Fibrins
Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineered regenerative biostructures for implantation into a human body as a bone substitute)

IT **1306-06-5**, Hydroxyapatite **7758-87-4**, Tricalcium phosphate 7782-42-5, Graphite, biological studies 9011-14-7, Pmma **10103-46-5**, Calcium phosphate 13397-26-7, Calcite, biological studies 14791-73-2, Aragonite 26161-42-2 26811-96-1, Poly(L-lactic acid) 34346-01-5, Glycolic acid-lactic acid copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineered regenerative biostructures for implantation into a human body as a bone substitute)

=> d ibib abs hitstr kwic 6-46

L76 ANSWER 6 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:716869 HCAPLUS
DOCUMENT NUMBER: 137:237804
TITLE: Implantable biodegradable devices containing fiber matrix for musculoskeletal repair or regeneration
INVENTOR(S): Brown, Kelly R.; Chun, Iksoo; Hammer, Joseph J.; Janas, Victor F.; Mandanas, Jennifer; Melican, Mora C.; Rezania, Alireza; Zimmerman, Mark C.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 20 pp., Cont.-in-part of U.S. Ser. No. 745,783.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

US 2002131989 A1 20020919 US 2001-20021 20011207
US 2002119179 A1 20020829 US 2000-745783 20001222
WO 2002051463 A2 20020704 WO 2001-US49017 20011219
WO 2002051463 A3 20030130
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.: US 2000-745783 A2 20001222
US 2001-20021 A 20011207

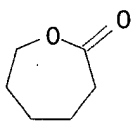
AB An implantable biodegradable device is disclosed contg. a fibrous matrix, the fibrous matrix being constructed from fibers A and fibers B, wherein fibers A biodegrade faster than fibers B, fibers A and fibers B are present in relative amts. and are organized such that the fibrous matrix is provided with properties useful in repair and/or regeneration of mammalian tissue. For example, three-dimensional nonwoven fibrous matrixes, or mats, were prepd. using fibers of the PGA/PLA copolymer (90:10) obtained by melt extrusion or conventional means. A no. of wet lay nonwoven matrixes were then prepd. utilizing predetd. fiber selection. Processing aids used included Nalco 625 liq. polymer, Value M-20 and Berchem 4283. Once the fibers were uniformly dispersed within the water the mixt. was drained through a screen to allow water to pass there through and to trap the fibers on the screen. After the water drained through the screen, the mat of fibers was removed. The mat was then dried on both sides, rinsed overnight in water followed by another overnight incubation in ethanol to remove any residual chems. or processing aids used during the manufg. process.

IT **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**, Poly(glycolic acid) **26124-68-5**, Poly(glycolic acid)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(binder; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

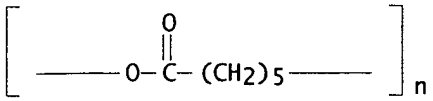
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

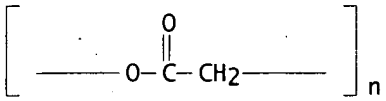
CRN 502-44-3
CMF C6 H10 O2



RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



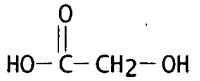
RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



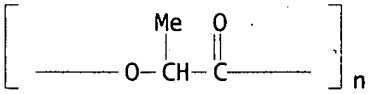
RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1
CMF C2 H4 O3



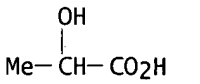
IT **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]
26100-51-6, Poly(lactic acid)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 50-21-5
CMF C3 H6 O3

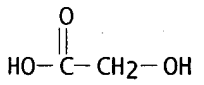


IT **9004-61-9, Hyaluronic acid**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fibers; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

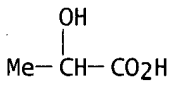
CM 1

CRN 79-14-1
CMF C2 H4 O3



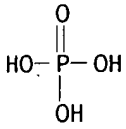
CM 2

CRN 50-21-5
CMF C3 H6 O3



IT **1305-78-8**, Calcium oxide, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glass contg.; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

IT **10103-46-5**, Calcium phosphate
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(silicate-contg., glass; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
RN 10103-46-5 HCAPLUS
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

IT Platelet-derived **growth factors**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(AA, coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT Platelet-derived **growth factors**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(BB, coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-based, binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT Actins
Antibodies
Bone morphogenetic proteins
Collagens, biological studies
Elastins
Fibrillins
Fibronectins
Glycosaminoglycans, biological studies
Laminins
Myosins
Pleiotrophins
Transforming **growth factors**
Vitronectin
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **Polycarbonates, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fiber, imino-; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **Biopolymers**
Polyanhydrides
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fibers; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT Bone
Muscle
Pore size
Regeneration, animal
Yarns

(implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **Prosthetic materials and Prosthetics**
(implants; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based, binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**, Poly(glycolic acid) **26124-68-5**, Poly(glycolic acid) 31621-87-1, Polydioxanone
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(binder; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Poly(lactic acid)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **9004-61-9**, **Hyaluronic acid** 106096-92-8 106096-93-9, Fibroblast **growth factor** 2 116243-73-3, Endothelin 127464-60-2, Vascular endothelial **growth factor**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fibers; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **1305-78-8**, Calcium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glass contg.; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

IT **10103-46-5**, Calcium phosphate
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(silicate-contg., glass; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

L76 ANSWER 7 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:711241 HCAPLUS
DOCUMENT NUMBER: 137:237796
TITLE: Viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**
INVENTOR(S): Janas, Victor F.; Tenhuisen, Kevor S.
PATENT ASSIGNEE(S): Ethicon, Inc., USA
SOURCE: U.S., 7 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6451059	B1	20020917	US 1999-439656	19991112

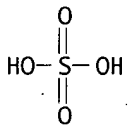
PRIORITY APPLN. INFO.: US 1999-439656 19991112

AB The present invention provides a hard tissue **scaffold** comprising a resorbable ceramic. The **scaffold** is formed by first creating unfired (green) bioresorbable ceramic fibers via the viscous suspension spinning process (VSSP). Then, using common textile techniques, a structure in which the size and distribution of interconnected **pores** are controlled, is created. Heat treating the structure to remove the org. **phase** and sintering the ceramic yields a hard tissue **scaffold**. For example, particles of ceramic tricalcium phosphate were milled in water contg. a sodium silicate surfactant to create a dispersion. The dispersion was added to a viscose at the ratio of ceramic particles to cellulose of 70:30 by wt. The mixt. was pumped through a 100-hole, 90-.mu. spinneret into a soln. of sulfuric acid which, after subsequent washes in mild acid solns. and water, yielded a tow of cellulose fibers highly filled with ceramic phosphate and sulfate particles. Approx. 1 g of yarn was placed on platinum foil, which in turn was put onto an aluminum setter plate, and placed in a high temp. furnace to remove the cellulose and allow for sintering of the ceramic particles. The resulting ceramic fibers were a multiphasic blend of calcium sulfates, sodium sulfates, calcium phosphates, and sodium phosphates. By wt., the fibers were 52% SO4, 37% CaO, 4.5% P2O5, 3.6% Na2O, and approx. 3% of trace compds. such as SiO2 and ZnO.

IT **7778-18-9**, Calcium sulfate
RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(ceramics contg.; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

RN 7778-18-9 HCAPLUS

CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

IT **1306-06-5**, Hydroxyapatite **7758-87-4**, Tricalcium phosphate **10103-46-5**, Calcium phosphate **13767-12-9**, Tetracalcium phosphate
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

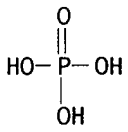
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

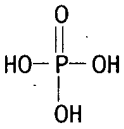
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



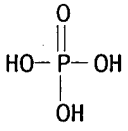
3/2 Ca

RN 10103-46-5 HCAPLUS
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

RN 13767-12-9 HCAPLUS
CN Phosphoric acid, calcium salt (3:4) (8CI, 9CI) (CA INDEX NAME)



4/3 Ca

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**

CC **63-7** (Pharmaceuticals)
Section cross-reference(s): 57

AB The present invention provides a hard tissue **scaffold** comprising a resorbable ceramic. The **scaffold** is formed by first creating unfired (green) bioresorbable ceramic fibers via the viscous suspension spinning process (VSSP). Then, using common textile techniques, a structure in which the size and distribution of interconnected **pores** are controlled, is created. Heat treating the structure to remove the org. **phase** and sintering the ceramic yields a hard tissue **scaffold**. For example, particles of ceramic tricalcium

phosphate were milled in water contg. a sodium silicate surfactant to create a dispersion. The dispersion was added to a viscose at the ratio of ceramic particles to cellulose of 70:30 by wt. The mixt. was pumped through a 100-hole, 90-.mu. spinneret into a soln. of sulfuric acid which, after subsequent washes in mild acid solns. and water, yielded a tow of cellulose fibers highly filled with ceramic phosphate and sulfate particles. Approx. 1 g of yarn was placed on platinum foil, which in turn was put onto an aluminum setter plate, and placed in a high temp. furnace to remove the cellulose and allow for sintering of the ceramic particles. The resulting ceramic fibers were a multiphasic blend of calcium sulfates, sodium sulfates, calcium phosphates, and sodium phosphates. By wt., the fibers were 52% SO4, 37% CaO, 4.5% P2O5, 3.6% Na2O, and approx. 3% of trace compds. such as SiO2 and ZnO.

IT Bone
(artificial; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds** for bone grafts)

IT Polymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(biocompatible; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT **Ceramics**
(blends; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT Glass, biological studies
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(blends; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT Fibers
RL: MOA (Modifier or additive use); USES (Uses)
(cellulosic; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT Prosthetic materials and Prosthetics
(ceramic, implants; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT **Pore** size
Pore size distribution
(controlled; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT **Ceramics**
(fibers; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT **Ceramics**
(prosthetic implants; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT Heat treatment
Textiles
Viscose
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT **Polyesters, uses**
RL: MOA (Modifier or additive use); USES (Uses)
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT Bone formation
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds** for bone growth)

IT 7632-05-5, Sodium phosphate 7757-82-6, Sodium sulfate, biological studies **7778-18-9**, Calcium sulfate

RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(ceramics contg.; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT 9002-89-5, Polyvinyl alcohol 9004-34-6D, Cellulose, derivs.
RL: MOA (Modifier or additive use); USES (Uses)
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

IT **1306-06-5**, Hydroxyapatite **7758-87-4**, Tricalcium phosphate **10103-46-5**, Calcium phosphate **13767-12-9**, Tetracalcium phosphate
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

L76 ANSWER 8 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:521417 HCAPLUS
DOCUMENT NUMBER: 137:83712
TITLE: Polymer compositions for bone implants
INVENTOR(S): Vaidyanathan, K. Ranji; Walish, Joseph; Calvert, Paul D.
PATENT ASSIGNEE(S): Advanced Ceramics Research, Inc., USA
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002053105	A2	20020711	WO 2002-US51	20020102

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

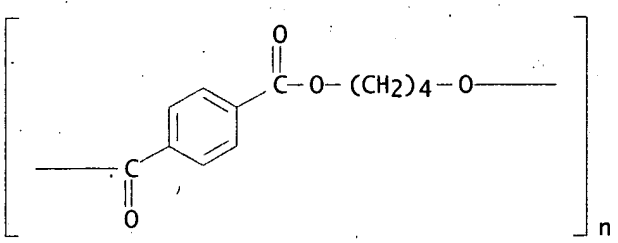
PRIORITY APPLN. INFO.: US 2001-259348P P 20010102
US 2001-337577P P 20011105

AB The present invention relates to biomedical implants for bone substitution and replacement applications. The implant includes a strong, porous polymeric or thermoplastic compns. and growth-enhancing compns. Poly-2-ethyl-2-oxazoline (PEOx) was mixed with PBT and calcium phosphate. The blending was performed at 215.degree.. The compn. contained poly(2-ethyl-2-oxazoline) 36, PBT 46, calcium phosphate 10, and plasticizer 8%. Feed rods of the blend were made and extruded with the extrusion free from fabrication process.

IT **24968-12-5**, PBT **26062-94-2**, 1,4-Butanediol-terephthalic acid copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polymer compns. for bone implants)

RN 24968-12-5 HCAPLUS

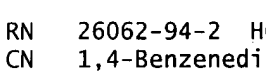
CN Poly(oxy-1,4-butanediyloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



RN 26062-94-2 HCAPLUS
CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

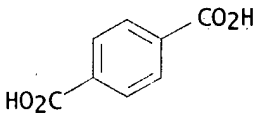
CM 1

CRN 110-63-4
CMF C4 H10 O2

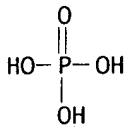


CM 2

CRN 100-21-0
CMF C8 H6 O4



IT **7758-87-4**, Tricalcium phosphate **24980-41-4**, Polycaprolactone **25038-59-9**, PET, biological studies **25248-42-4**, Polycaprolactone **26009-03-0**, Poly(Glycolic acid) **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Poly(lactic acid) **26124-68-5**, Poly(Glycolic acid) **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polymer compns. for bone implants)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)

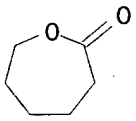


3/2 Ca

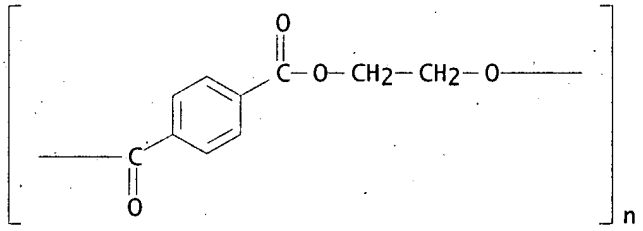
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

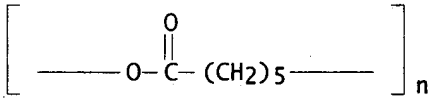
CRN 502-44-3
CMF C6 H10 O2



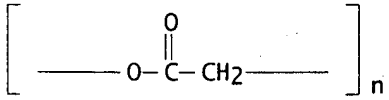
RN 25038-59-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



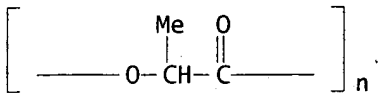
RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



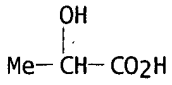
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

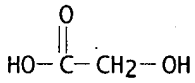
CRN 50-21-5
CMF C3 H6 O3



RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

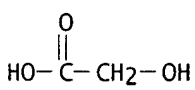
CRN 79-14-1
CMF C2 H4 O3



RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

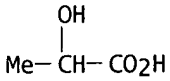
CM 1

CRN 79-14-1
CMF C2 H4 O3



CM 2

CRN 50-21-5
CMF C3 H6 O3



IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(aliph., linear; polymer compns. for bone implants)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(caprolactone-based; polymer compns. for bone implants)

IT **Prosthetic materials and Prosthetics**
(ceramic, implants; polymer compns. for bone implants)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(hydroxycarboxylic acid-based; polymer compns. for bone implants)

IT **Prosthetic materials and Prosthetics**
(implants; polymer compns. for bone implants)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(lactic acid-based; polymer compns. for bone implants)

IT Bone formation
Extrusion of plastics and rubbers
Human
Pore size distribution
Porosity
Viscosity
(polymer compns. for bone implants)

IT **Polyesters, biological studies**
Polyesters, biological studies
Polymer blends
Polymers, biological studies
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polymer compns. for bone implants)

IT Transforming **growth factors**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymer compns. for bone implants)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polyoxyphenylene-; polymer compns. for bone implants)

IT **Ceramics**
(prosthetic implants; polymer compns. for bone implants)

IT **24968-12-5**, PBT 25805-17-8, Poly(2-ethyl-2-oxazoline)
26062-94-2, 1,4-Butanediol-terephthalic acid copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polymer compns. for bone implants)

IT **7758-87-4**, Tricalcium phosphate 9011-14-7, PMMA **24980-41-4**, Polycaprolactone **25038-59-9**, PET, biological studies **25248-42-4**, Polycaprolactone **26009-03-0**, Poly(Glycolic acid) **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Poly(lactic acid) **26124-68-5**, Poly(Glycolic acid) 31694-16-3, PEEK **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polymer compns. for bone implants)

L76 ANSWER 9 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:385129 HCAPLUS
TITLE: Preparation and histological evaluation of biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**
AUTHOR(S): Zhao, Feng; Yin, Yuji; Lu, William W.; Leong, J. Chiyan; Zhang, Wenyi; Zhang, Jingyu; Zhang, Mingfang; Yao, Kangde
CORPORATE SOURCE: Tianjin University, Research Institute of Polymeric Materials, Tianjin, 300072, Peop. Rep. China
SOURCE: Biomaterials (2002), 23(15), 3227-3234
CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel biodegradable hydroxyapatite/chitosan-gelatin network (HA/CS-Gel) composite of similar compn. to that of normal human bone was prepd. as a three-dimensional biomimetic **scaffold** by **phase** sepn. method for bone tissue engineering. Changing the solid content and the compositional variables of the original mixts. allowed control of the **porosities** and densities of the **scaffolds**. The HA granules were dispersed uniformly in the org. network with intimate interface contact via pulverizing and ultrasonically treating com. available HA particles. **Scaffolds** of 90.6% **porosity** were used to examine the proliferation and functions of the cells in this three-dimensional microenvironment by culturing neonatal rat caldaria osteoblasts. Histol. and immunohistochem. staining and SEM observation indicated that the osteoblasts attached to and proliferated on the **scaffolds**. Extracellular matrixes including collagen I and proteoglycan-like substrate were synthesized, while osteoid and bone-like tissue formed during the culture period. Furthermore, the cell/**scaffold** constructs had good biomineralization effect after 3 wk in culture.

IT **1306-06-5**, Hydroxyapatite
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Preparation and histological evaluation of biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**

CC **63-7** (Pharmaceuticals)

AB A novel biodegradable hydroxyapatite/chitosan-gelatin network (HA/CS-Gel) composite of similar compn. to that of normal human bone was prepd. as a three-dimensional biomimetic **scaffold** by **phase** sepn. method for bone tissue engineering. Changing the solid content and the compositional variables of the original mixts. allowed control of the **porosities** and densities of the **scaffolds**. The HA granules were dispersed uniformly in the org. network with intimate interface contact via pulverizing and ultrasonically treating com. available HA particles. **Scaffolds** of 90.6% **porosity** were used to examine the proliferation and functions of the cells in this three-dimensional microenvironment by culturing neonatal rat caldaria osteoblasts. Histol. and immunohistochem. staining and SEM observation indicated that the osteoblasts attached to and proliferated on the **scaffolds**. Extracellular matrixes including collagen I and proteoglycan-like substrate were synthesized, while osteoid and bone-like tissue formed during the culture period. Furthermore, the cell/**scaffold** constructs had good biomineralization effect after 3 wk in culture.

IT Bone
(artificial; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

IT Animal tissue culture
Biomineralization
Cell proliferation
Human
Osteoblast
Porosity
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

IT Proteoglycans
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

IT Gelatins
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

IT Prosthetic materials and Prosthetics
(composites; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

IT Bone
(osteoid; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

IT **Collagens**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type I; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

IT **1306-06-5**, Hydroxyapatite 9012-76-4, Chitosan
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

L76 ANSWER 10 OF 46 HCAPLUS COPYRIGHT 2003 ACS

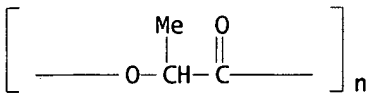
ACCESSION NUMBER: 2002:340922 HCAPLUS
DOCUMENT NUMBER: 138:142378
TITLE: Plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**
AUTHOR(S): Weng, Jie; Wang, Min; Chen, Jiyong
CORPORATE SOURCE: Nanyang Technological University, School of Mechanical and Production Engineering, Singapore, 639798, Singapore
SOURCE: Biomaterials (2002), 23(13), 2623-2629
CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Highly cryst. feedstock hydroxyapatite (HA) particles with irregular shapes were spheroidized by plasma spraying them onto the surface of ice blocks or into water. The spherical Ca-P particles thus produced contained various amts. of the amorphous **phase** which were controlled by the stand-off distance between the spray nozzle and the surface of ice blocks or water. The smooth surface morphol. without cracks of spherical Ca-P particles indicated that there were very low thermal stresses in these particles. Plasma-sprayed Ca-P particles were highly bioactive due to their amorphous component and hence quickly induced the formation of bone-like apatite on their surfaces after they were immersed in an acellular simulated body fluid at 36.5.degree.. Bone-like apatite nucleated on dissolved surface (due to the amorphous **phase**) of individual Ca-P particles and grew to coalesce between neighboring Ca-P particles thus forming an integrated apatite plate. Bioactive and biodegradable composite **scaffolds** were produced by incorporating plasma-sprayed Ca-P particles into a degradable polymer. In vitro expts. showed that plasma-sprayed Ca-P particles enhanced the formation of bone-like apatite on the **pore** surface of Ca-P/PLLA composite **scaffolds**.

IT **1306-06-5**, Hydroxyapatite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

IT **26161-42-2 26811-96-1**, Poly(L-lactic acid)
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)
RN 26161-42-2 HCAPLUS
CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)

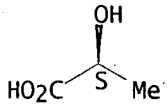


RN 26811-96-1 HCAPLUS
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4
CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**

CC **63-7** (Pharmaceuticals)

AB Highly cryst. feedstock hydroxyapatite (HA) particles with irregular shapes were spheroidized by plasma spraying them onto the surface of ice blocks or into water. The spherical Ca-P particles thus produced contained various amts. of the amorphous **phase** which were controlled by the stand-off distance between the spray nozzle and the surface of ice blocks or water. The smooth surface morphol. without cracks of spherical Ca-P particles indicated that there were very low thermal stresses in these particles. Plasma-sprayed Ca-P particles were highly bioactive due to their amorphous component and hence quickly induced the formation of bone-like apatite on their surfaces after they were immersed in an acellular simulated body fluid at 36.5.degree.. Bone-like apatite nucleated on dissolved surface (due to the amorphous **phase**) of individual Ca-P particles and grew to coalesce between neighboring Ca-P particles thus forming an integrated apatite plate. Bioactive and biodegradable composite **scaffolds** were produced by incorporating plasma-sprayed Ca-P particles into a degradable polymer. In vitro expts. showed that plasma-sprayed Ca-P particles enhanced the formation of bone-like apatite on the **pore** surface of Ca-P/PLLA composite **scaffolds**.

IT Bone
(artificial; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

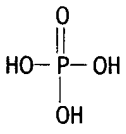
IT Prosthetic materials and Prosthetics
(composites; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

IT **Polyesters, biological studies**
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

IT Coating process
(plasma spraying; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

IT Surface structure
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)
IT **1306-06-5**, Hydroxyapatite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)
IT **26161-42-2 26811-96-1**, Poly(L-lactic acid)
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

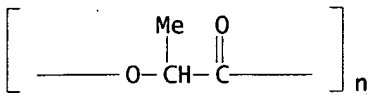
L76 ANSWER 11 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:335323 HCAPLUS
DOCUMENT NUMBER: 138:193063
TITLE: Fabrication of **porous scaffolds** for bone tissue engineering via low-temperature deposition
AUTHOR(S): Xiong, Zhuo; Yan, Yongnian; Wang, Shenguo; Zhang, Renji; Zhang, Chao
CORPORATE SOURCE: Department of Mechanical Engineering, Tsinghua University, Beijing, 100084, Peop. Rep. China
SOURCE: Scripta Materialia (2002), 46(11), 771-776
CODEN: SCMAF7; ISSN: 1359-6462
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new process of low-temp. deposition manufg. (LDM) based on the **layer**-by-**layer** manufg. method of solid freeform fabrication is proposed to fabricate poly(l-lactic acid)/(tricalcium phosphate) composite **scaffolds** for bone tissue engineering. The LDM system and the manufg. process are analyzed. The manufd. **scaffolds** are evaluated as bone regeneration **scaffolds** following implantation of the **scaffold** loaded with bone morphogenic protein.
IT **7758-87-4**, Tricalcium phosphate **26161-42-2** **26811-96-1**, Poly(L-lactic acid)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



●3/2 Ca

RN 26161-42-2 HCAPLUS

CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)

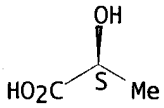


RN 26811-96-1 HCAPLUS
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4
CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Fabrication of **porous scaffolds** for bone tissue engineering via low-temperature deposition
CC **63-7** (Pharmaceuticals)
AB A new process of low-temp. deposition manufg. (LDM) based on the **layer**-by-**layer** manufg. method of solid freeform fabrication is proposed to fabricate poly(l-lactic acid)/(tricalcium phosphate) composite **scaffolds** for bone tissue engineering. The LDM system and the manufg. process are analyzed. The manufd. **scaffolds** are evaluated as bone regeneration **scaffolds** following implantation of the **scaffold** loaded with bone morphogenic protein.
ST polylactate tricalcium phosphate composite bone **scaffold**
IT Prosthetic materials and Prosthetics
(composites; fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)
IT Bending strength
Bone
Compressive strength
Human
Porosity
(fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)
IT Bone morphogenetic proteins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)
IT Prosthetic materials and Prosthetics
(implants; fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)
IT **7758-87-4**, Tricalcium phosphate **26161-42-2** **26811-96-1**, Poly(L-lactic acid)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)

L76 ANSWER 12 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:256581 HCAPLUS
DOCUMENT NUMBER: 136:289902
TITLE: Electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic molecular biological reaction, analyses and diagnostics
INVENTOR(S): Edman, Carl F.; Tu, Eugene; Gurtner, Christian; Westin, Lorelei; Heller, Michael J.
PATENT ASSIGNEE(S): Nanogen, Inc., USA
SOURCE: PCT Int. Appl., 125 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002027312	A1	20020404	WO 2001-US30046	20010926
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001094722	A5	20020408	AU 2001-94722	20010926

PRIORITY APPLN. INFO.: US 2000-671954 A 20000927
WO 2001-US30046 W 20010926

AB This invention pertains to the design, fabrication, and uses of an electronic system which can actively carry out and control multi-step and multiplex reactions in macroscopic or microscopic formats. In particular, these reactions include mol. biol. reactions, such as nucleic acid hybridizations, nucleic acid amplification, sample prepn., antibody/antigen reactions, clin. diagnostics, combinatorial chem. and selection, drug screening, oligonucleotide and nucleic acid synthesis, peptide synthesis, biopolymer synthesis, and catalytic reactions. A key feature of the present invention is the ability to control the localized concn. of two or more reaction-dependent mols. and their reaction environment in order to greatly enhance the rate and specificity of the mol. biol. reaction. Elec. fields are utilized as an independent parameter to modulate or control the multi-step and multiplex reactions. The devices provide a controllable elec. (electrophoretic) field as a driving force to move and conc. nucleic acid mols. (probes and/or targets) or other reagents to a selected microscopic/macroscopic test site (with other fixed target or probe mols.). Utilization of particular buffer compns. on either side of the test site/semi-permeable matrix structure creates favorable reaction zones for the reactant mols. (e.g., DNA probes and targets), and the ability to strictly control or modulate the reaction at the test site. The devices are particular useful for the acceleration of transport and hybridization of nucleic acids and the control of stringency of nucleic acid interactions.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Pore size**
(of semipermeable membrane; electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic mol. biol. reaction, analyses and diagnostics)
IT **Ceramics**
(support contg. semipermeable matrix; electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic mol. biol. reaction, analyses and diagnostics)
IT **Biopolymers**
Nucleic acids
Oligonucleotides
Peptides, preparation
Proteins
RL: BPN (Biosynthetic preparation); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(synthesis of; electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic mol. biol. reaction, analyses and diagnostics)

L76 ANSWER 13 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:184847 HCAPLUS
DOCUMENT NUMBER: 136:236894
TITLE: Manufacture of orthopedic implants based on calcium in polymer matrix using supercritical fluid processing
INVENTOR(S): Mandel, Frederick S.; Wang, J. Don
PATENT ASSIGNEE(S): Ferro Corporation, USA
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002019947	A1	20020314	WO 2001-US26304	20010823
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
US 6506213	B1	20030114	US 2000-658250	20000908
AU 2001086653	A5	20020322	AU 2001-86653	20010823

PRIORITY APPLN. INFO.: US 2000-658250 A 20000908
WO 2001-US26304 W 20010823

AB Orthopedic parts are manufd. using supercrit. fluid processing techniques in which starting materials and a process medium are mixed in a reactor to form a supercrit. fluid slurry. The starting materials include a source of calcium ions and a polymer matrix for the calcium ions. The process medium preferably is carbon dioxide which is supplied to the reactor in a supercrit. state or which is heated and pressurized in the reactor to attain a supercrit. state. A conduit connects the reactor to a mold that has a cavity of a desired shape for an orthopedic part. A flush valve interconnects the bottom of a reactor and the conduit. When the flush valve is opened, the slurry is directed through the conduit into the mold where solidification occurs very rapidity. The resultant product is a strong, **porous** structure that simulates autogenic bone. For

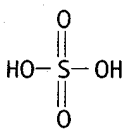
example, 280 g of a 50:50 mixt. of calcium sulfate and poly(.epsilon.-caprolactone) was charged into a one-gal reactor. Reactor was filled with 2.49 k of liq. CO2 and heated to 38.degree. at a pressure of .apprx.116 bar rendering the CO2 supercrit. fluid. After completion of mixing, the starting materials were formed into a supercrit. fluid slurry. The valve was opened and the slurry was directed through a conduit into a mold, the mold was filled instantly producing a solid rod with a very dense surface and a somewhat **porous** core.

IT **1306-06-5**, Hydroxyapatite **7778-18-9**, Calcium sulfate **10103-46-5**, Dynafos
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

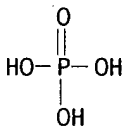
Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7778-18-9 HCAPLUS
CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 10103-46-5 HCAPLUS
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

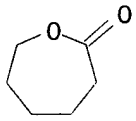
IT **24980-41-4**, Poly(.epsilon.-caprolactone) **25248-42-4**, Poly[oxy(1-oxo-1,6-hexanediyl)] **26009-03-0**, Poly(glycolic acid) **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26063-00-3**, Poly(3-hydroxybutyric acid) **26100-51-6**, Poly(lactic acid) **26124-68-5**, Poly(glycolic acid) **26744-04-7** **26780-50-7**, Glycolide-lactide copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

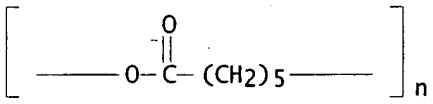
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

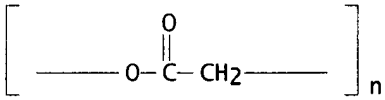
CRN 502-44-3
CMF C6 H10 O2



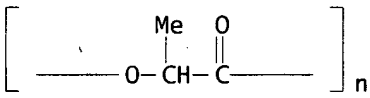
RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



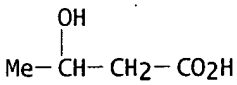
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26063-00-3 HCAPLUS
CN Butanoic acid, 3-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

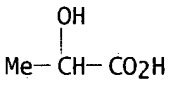
CRN 300-85-6
CMF C4 H8 O3



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

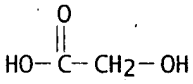
CRN 50-21-5
CMF C3 H6 O3



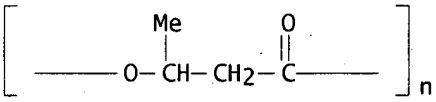
RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1
CMF C2 H4 O3



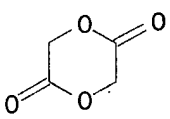
RN 26744-04-7 HCAPLUS
CN Poly[oxy(1-methyl-3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)



RN 26780-50-7 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

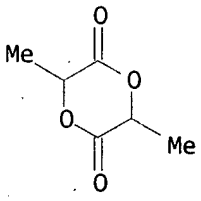
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

CRN 95-96-5
CMF C6 H8 O4



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Orthopedic parts are manufd. using supercrit. fluid processing techniques in which starting materials and a process medium are mixed in a reactor to form a supercrit. fluid slurry. The starting materials include a source of calcium ions and a polymer matrix for the calcium ions. The process medium preferably is carbon dioxide which is supplied to the reactor in a supercrit. state or which is heated and pressurized in the reactor to attain a supercrit. state. A conduit connects the reactor to a mold that has a cavity of a desired shape for an orthopedic part. A flush valve interconnects the bottom of a reactor and the conduit. When the flush valve is opened, the slurry is directed through the conduit into the mold where solidification occurs very rapidity. The resultant product is a strong, **porous** structure that simulates autogenic bone. For example, 280 g of a 50:50 mixt. of calcium sulfate and poly(.epsilon.-caprolactone) was charged into a one-gal reactor. Reactor was filled with 2.49 k of liq. CO2 and heated to 38.degree. at a pressure of .apprx.116 bar rendering the CO2 supercrit. fluid. After completion of mixing, the starting materials were formed into a supercrit. fluid slurry. The valve was opened and the slurry was directed through a conduit into a mold, the mold was filled instantly producing a solid rod with a very dense surface and a somewhat **porous** core.

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(azo-contg., matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(caprolactone-based, matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(dilactone-based, matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);
USES (Uses)
(lactic acid-based, matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT Molding apparatus for plastics and rubbers
Molding of plastics and rubbers
Pore size
Porosity
Supercritical fluids
(manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT Polyanhydrides
Polyesters, biological studies
Polymers, biological studies
Polyoxyalkylenes, biological studies
Polyphosphazenes
Polyurethanes, biological studies
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);
USES (Uses)
(matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT 62-54-4D, Calcium acetate, complexes **1306-06-5**, Hydroxyapatite 7440-70-2, Calcium, biological studies **7778-18-9**, Calcium sulfate 7785-82-2, EDTA calcium salt **10103-46-5**, Dynafos 12167-74-7, Calcium hydroxide phosphate (Ca5(OH)(PO4)3) 13397-24-5, Gypsum, biological studies 26499-65-0, Gypsum hemihydrate
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);
USES (Uses)
(manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT 79-10-7D, Acrylic acid, esters, polymers 9002-86-2, Polyvinyl chloride 9002-88-4, Polyethylene 9002-89-5, Polyvinyl alcohol 9003-01-4, Polyacrylic acid 9003-05-8, Polyacrylamide 9003-07-0, Polypropylene 9003-97-8, Polycarbophil 9016-00-6, Polydimethylsiloxane 24937-78-8, Ethylene-vinyl acetate copolymer **24980-41-4**, Poly(.epsilon.-caprolactone) 25189-55-3, Poly(N-isopropyl acrylamide) **25248-42-4**, Poly[oxy(1-oxo-1,6-hexanediyl)] 25322-68-3, Polyethylene glycol **26009-03-0**, Poly(glycolic acid) **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26063-00-3**, Poly(3-hydroxybutyric acid) **26100-51-6**, Poly(lactic acid) **26124-68-5**, Poly(glycolic acid) **26744-04-7 26780-50-7**, Glycolide-lactide copolymer 31900-57-9, Polydimethylsiloxane 37353-59-6, Hydroxymethyl cellulose
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);
USES (Uses)
(matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

L76 ANSWER 14 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:157554 HCAPLUS
DOCUMENT NUMBER: 136:205417
TITLE: A porous carrier for controlled drug release
INVENTOR(S): Sambrook, Rodney Martin; Austin, Wayne; Sambrook, Mark Rodney; Hannon, Michael
PATENT ASSIGNEE(S): Dytech Corporation Ltd., UK
SOURCE: PCT Int. Appl., 57 pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002015881	A2	20020228	WO 2001-GB3739	20010821
WO 2002015881	A3	20020627		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001079970	A5	20020304	AU 2001-79970	20010821

PRIORITY APPLN. INFO.: GB 2000-20610 A 20000821
WO 2001-GB3739 W 20010821

AB A porous carrier having interconnected porosity is loaded with a drug or other material for controlled release of the drug or other material. Using a vacuum method cisplatin in an aq. sodium chloride soln. was injected onto an hydroxylapatite block of porosity 84.04%. After drying patches of yellow presumed to be cisplatin were obsd. on the surface of the block. No yellow color was obsd. within the block. Release of cisplatin was rapid, with almost the entire drug being released after 45 min. The fast release of the drug may indicate that penetration into the block is not occurring and the drug is merely being released from the surface of the block.

IT **1306-06-5**, Hydroxylapatite **26780-50-7**, Glycolide-lactide copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous carrier for controlled drug release)

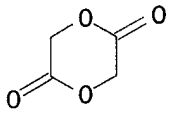
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 26780-50-7 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

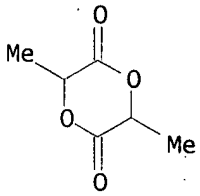
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

CRN 95-96-5
CMF C6 H8 O4



IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; porous carrier for controlled drug release)
IT **Prosthetic materials and Prosthetics**
(implants; porous carrier for controlled drug release)
IT Anti-inflammatory agents
Antibiotics
Biocompatibility
Ceramics
Density
Pore size distribution
(porous carrier for controlled drug release)
IT Bone morphogenetic proteins
Collagens, biological studies
Coordination compounds
Growth factors, animal
Hormones, animal, biological studies
Metallocenes
Organometallic compounds
Platelet-derived **growth factors**
Polyanhydrides
Polymers, biological studies
Proteins
Sandwich compounds
Vitamins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous carrier for controlled drug release)
IT Transforming **growth factors**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.-; porous carrier for controlled drug release)
IT 50-24-8, Prednisolone 59-05-2, Methotrexate **1306-06-5**, Hydroxylapatite 9002-72-6, Somatotropin 9003-01-4, Poly(acrylic acid) 14586-54-0 15663-27-1, Cisplatin 15766-00-4, Sm-153, biological studies **26780-50-7**, Glycolide-lactide copolymer 62031-54-3, FGF 67763-96-6, IGF-1 67763-97-7, IGF-II 81271-82-1, Sr-67, biological studies 90409-78-2
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(porous carrier for controlled drug release)

L76 ANSWER 15 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:103528 HCAPLUS
DOCUMENT NUMBER: 136:139899
TITLE: Biodegradable implant material comprising bioactive ceramic
INVENTOR(S): Niederauer, Gabriele; Kieswetter, Kristine; Leatherbury, Neil C.; Greenspan, David C.
PATENT ASSIGNEE(S): Osteobiologics, Inc., USA; Usbiomaterials Corporation
SOURCE: U.S., 17 pp., Cont.-in-part of U.S. 5,977,204.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6344496	B1	20020205	US 1999-412559	19991005
US 5977204	A	19991102	US 1997-838921	19970411

PRIORITY APPLN. INFO.: US 1997-838921 A2 19970411

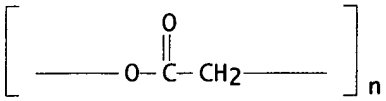
AB Biodegradable polymeric therapeutic substantially nonporous implant materials incorporating bioactive ceramics such as Bioglass ceramic are provided. These implants provide increased mech. properties and pH control, enabling the use of these materials to design **porous** and nonporous therapeutic implants used as cell **scaffolds** for healing of tissue defects or fixation devices, having desired degrdn. times, mech. properties, elasticity and biocompatibility. To characterize the surface-reactive properties of the composites, specimens of 55/45 DL-PLG contg. 5, 10 and 20% Bioglass ceramic were suspended in simulated body fluid (SBF) for up to 8 wk at a surface area to vol. ratio of 0.1 cm-1 at 37.degree.. At the end of various reaction times, samples were removed and surface reactivity detd. by FT-IR spectroscopy. At 8 wk, only composites with 20% Bioglass ceramic showed formation of an apatite **layer** which promotes close interaction with bone. Surface reactive properties can be tailored to the desired tissue by varying the Bioglass ceramic type and concn.

IT **1305-78-8**, Calcium oxide, biological studies **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26780-50-7**, Glycolide-lactide copolymer **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable implant material comprising bioactive ceramic)

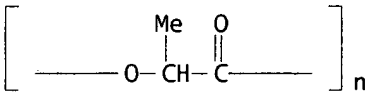
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



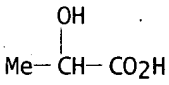
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

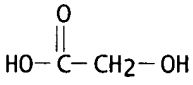
CRN 50-21-5
CMF C3 H6 O3



RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

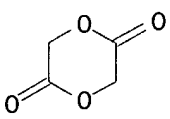
CRN 79-14-1
CMF C2 H4 O3



RN 26780-50-7 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

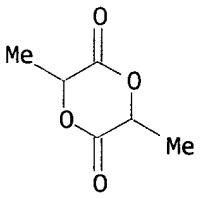
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

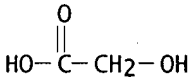
CRN 95-96-5
CMF C6 H8 O4



RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

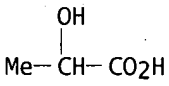
CM 1

CRN 79-14-1
CMF C2 H4 O3



CM 2

CRN 50-21-5
CMF C3 H6 O3



REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC **63-7** (Pharmaceuticals)

AB Biodegradable polymeric therapeutic substantially nonporous implant materials incorporating bioactive ceramics such as Bioglass ceramic are provided. These implants provide increased mech. properties and pH control, enabling the use of these materials to design **porous** and nonporous therapeutic implants used as cell **scaffolds** for healing of tissue defects or fixation devices, having desired degrdn. times, mech. properties, elasticity and biocompatibility. To characterize the surface-reactive properties of the composites, specimens of 55/45 DL-PLG contg. 5, 10 and 20% Bioglass ceramic were suspended in simulated body fluid (SBF) for up to 8 wk at a surface area to vol. ratio of 0.1 cm-1 at 37.degree.. At the end of various reaction times, samples were removed and surface reactivity detd. by FT-IR spectroscopy. At 8 wk, only composites with 20% Bioglass ceramic showed formation of an apatite **layer** which promotes close interaction with bone. Surface

reactive properties can be tailored to the desired tissue by varying the Bioglass ceramic type and concn.

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; biodegradable implant material comprising bioactive ceramic)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydroxycarboxylic acid-based; biodegradable implant material comprising bioactive ceramic)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; biodegradable implant material comprising bioactive ceramic)

IT **Ceramics**
(prosthetic implants, composite; biodegradable implant material comprising bioactive ceramic)

IT **Ceramics**
(prosthetic implants; biodegradable implant material comprising bioactive ceramic)

IT **1305-78-8**, Calcium oxide, biological studies 1313-59-3, Sodium oxide (Na2O), biological studies 7631-86-9, Silica, biological studies **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26780-50-7**, Glycolide-lactide copolymer **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable implant material comprising bioactive ceramic)

L76 ANSWER 16 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:89935 HCAPLUS
DOCUMENT NUMBER: 136:156489
TITLE: Three-dimensional medical assembly with biocompatible fibers for injury repair
INVENTOR(S): Leung, Jeffrey C.; Guilak, Farshid; Seaber, Anthony V.; Moutos, Franklin T.
PATENT ASSIGNEE(S): 3Tex, Inc., USA
SOURCE: PCT Int. Appl., 43 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002007961	A1	20020131	WO 2001-US40094	20010212

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2000-220002P P 20000721

AB A 3-dimensional fiber **scaffold** for injury repair, and methods of making and using the same. The **scaffold** includes at least 3

systems of fibers, wherein 2 of the 3 fiber systems define an upper **layer**, a lower **layer** and a medial **layer** between the upper **layer** and the lower **layer** within the 3-dimensional fiber **scaffold**, wherein one of the 3 fiber systems interconnects the upper **layer**, and the medial **layer**, and wherein the three fiber systems are each made of a biocompatible material.

IT **1306-06-5**, Hydroxyapatite **1398-61-4**, **Chitin** **7758-87-4**, TriCalcium phosphate **9004-61-9**, **Hyaluronic acid 24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26780-50-7**, Glycolide-lactide copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fiber; 3-dimensional medical assembly with biocompatible fibers for injury repair)

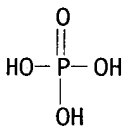
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1398-61-4 HCAPLUS
CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

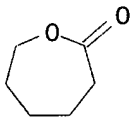
RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

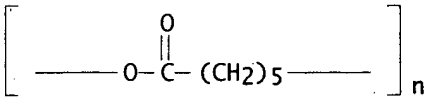
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

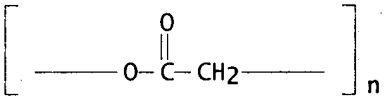
CRN 502-44-3
CMF C6 H10 O2



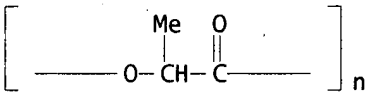
RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



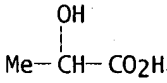
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

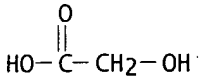
CRN 50-21-5
CMF C3 H6 O3



RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

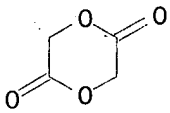
CRN 79-14-1
CMF C2 H4 O3



RN 26780-50-7 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

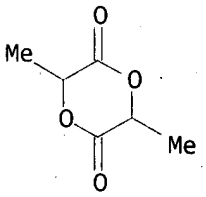
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

CRN 95-96-5
CMF C6 H8 O4



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC **63-7** (Pharmaceuticals)

AB A 3-dimensional fiber **scaffold** for injury repair, and methods of making and using the same. The **scaffold** includes at least 3 systems of fibers, wherein 2 of the 3 fiber systems define an upper **layer**, a lower **layer** and a medial **layer** between the upper **layer** and the lower **layer** within the 3-dimensional fiber **scaffold**, wherein one of the 3 fiber systems interconnects the upper **layer**, and the medial **layer**, and wherein the three fiber systems are each made of a biocompatible material.

IT Anti-infective agents
Biocompatibility
Coating materials
Electrolytes
Injury
Medical goods
Pore size distribution
Silk
Threads
Yarns

(3-dimensional medical assembly with biocompatible fibers for injury repair)

IT Acrylic fibers, biological studies
Carbon fibers, biological studies
Chemokines
Collagen fibers
Collagens, biological studies
Cytokines
Elastins
Fibrinogens
Fibrins
Fibronectins
Gelatins, biological studies
Glass fibers, biological studies
Glycosaminoglycans, biological studies
Growth factors, animal
Laminins
Lipids, biological studies
Metallic fibers
Minerals, biological studies
Polyamide fibers, biological studies
Polyester fibers, biological studies
Polypropene fibers, biological studies
Polyurethane fibers
Proteoglycans, biological studies
Quaternary ammonium compounds, biological studies
Synthetic fibers
Synthetic polymeric fibers, biological studies
Tenascins
Thrombospondins
Vinal fibers
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(3-dimensional medical assembly with biocompatible fibers for injury repair)

IT Synthetic polymeric fibers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**chitin**; 3-dimensional medical assembly with biocompatible fibers for injury repair)

IT Synthetic polymeric fibers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**hyaluronic acid**; 3-dimensional medical assembly with biocompatible fibers for injury repair)

IT **Prosthetic materials and Prosthetics**
(implants; 3-dimensional medical assembly with biocompatible fibers for injury repair)

IT **Polyesters, biological studies**
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyoxalates, fiber; 3-dimensional medical assembly with biocompatible fibers for injury repair)

IT **1306-06-5**, Hydroxyapatite **1398-61-4**, **Chitin**
7440-25-7, Tantalum, biological studies **7758-87-4**, TriCalcium phosphate 9002-84-0, Polytetrafluoroethylene 9002-88-4, Polyethylene 9002-89-5, Polyvinyl alcohol **9004-61-9**, **Hyaluronic acid** 9012-76-4, Chitosan **24980-41-4**, Polycaprolactone 25085-53-4, Isotactic polypropylene **25248-42-4**, Polycaprolactone **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26780-50-7**, Glycolide-lactide copolymer 29223-92-5 31621-87-1, Polydioxanone

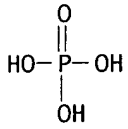
31694-16-3, PEEK
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fiber; 3-dimensional medical assembly with biocompatible fibers for injury repair)

L76 ANSWER 17 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:88361 HCAPLUS
DOCUMENT NUMBER: 137:206444
TITLE: Manufacture and evaluation of bioactive and biodegradable materials and **scaffolds** for tissue engineering
AUTHOR(S): Wang, M.; Chen, L. J.; Ni, J.; Weng, J.; Yue, C. Y.
CORPORATE SOURCE: School of Mechanical and Production Engineering, Nanyang Technological University, Singapore, 639798, Singapore
SOURCE: Journal of Materials Science: Materials in Medicine (2001), 12(10/11/12), 855-860
CODEN: JSMMEL; ISSN: 0957-4530
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB For tissue regeneration and tissue engineering applications, a no. of bioactive and biodegradable composites, either **porous** or non-**porous**, were fabricated. The newly developed materials included tricalcium phosphate reinforced polyhydroxybutyrate and its copolymer, poorly crystd. hydroxyapatite reinforced chitin, and plasma sprayed hydroxyapatite reinforced poly(L-lactic acid). It was shown that these new materials could be successfully produced using the manufg. techniques adopted. In vitro expts. revealed that the incorporation of bioceramic particles in biodegradable polymers rendered the composites bioactive and significantly improved the ability of composites to induce the formation of bone-like apatite on their surfaces. Degrdn. of composite **scaffolds** in simulated body fluid was obsd. and could be due to the simultaneous degrdn. of polymer matrix and dissoln. of bioceramic particles.
IT **1306-06-5**, Hydroxyapatite **1398-61-4**, **Chitin** **7758-87-4**, Tricalcium phosphate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioactive and biodegradable materials and **scaffolds** for tissue engineering)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1398-61-4 HCAPLUS
CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Manufacture and evaluation of bioactive and biodegradable materials and **scaffolds** for tissue engineering

AB For tissue regeneration and tissue engineering applications, a no. of bioactive and biodegradable composites, either **porous** or non-**porous**, were fabricated. The newly developed materials included tricalcium phosphate reinforced polyhydroxybutyrate and its copolymer, poorly crystd. hydroxyapatite reinforced chitin, and plasma sprayed hydroxyapatite reinforced poly(L-lactic acid). It was shown that these new materials could be successfully produced using the manufg. techniques adopted. In vitro expts. revealed that the incorporation of bioceramic particles in biodegradable polymers rendered the composites bioactive and significantly improved the ability of composites to induce the formation of bone-like apatite on their surfaces. Degrdn. of composite **scaffolds** in simulated body fluid was obsd. and could be due to the simultaneous degrdn. of polymer matrix and dissoln. of bioceramic particles.

IT Bone formation
Polymer degradation
(bioactive and biodegradable materials and **scaffolds** for tissue engineering)

IT Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioactive and biodegradable materials and **scaffolds** for tissue engineering)

IT Prosthetic materials and Prosthetics
(composites; bioactive and biodegradable materials and **scaffolds** for tissue engineering)

IT **1306-06-5**, Hydroxyapatite **1398-61-4**, **Chitin** **7758-87-4**, Tricalcium phosphate 26063-00-3, Polyhydroxybutyrate 26161-42-2 26744-04-7 26811-96-1, Poly(L-lactic acid) 133197-54-3
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioactive and biodegradable materials and **scaffolds** for tissue engineering)

L76 ANSWER 18 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:32075 HCAPLUS
DOCUMENT NUMBER: 137:174811
TITLE: Adsorption and release properties of growth factors from biodegradable implants
AUTHOR(S): Ziegler, J.; Mayr-Wohlfart, U.; Kessler, S.; Breitig, D.; Gunther, K.-P.
CORPORATE SOURCE: Orthopaedic Department (RKU), University of Ulm, Ulm, 89081, Germany
SOURCE: Journal of Biomedical Materials Research (2002), 59(3), 422-428
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The present investigation was performed to study the adsorption behavior of growth factors and their release characteristics from biodegradable implants in an in vitro study. The authors investigated the stability of growth factors administered on various **scaffolds**. The authors used **porous** tricalcium phosphate ceramics (.alpha.-TCP), a neutralized glass ceramics (GB9N), a composite (polylactide/-glycolide/GB9N), and solvent dehydrated human bone as carriers. Block shaped **scaffolds** (sized: 7 .times. 7 .times. 10 mm) were loaded with 5 .mu.g of either bone morphogenetic protein (rxBMP-4), basic fibroblast growth factor (rh-bFGF), or vascular endothelial growth factor (rh-VEGF) solved in 150 .mu.L PBS. The growth factors were labeled with Iodine-125 (I-125) for detecting the adsorbed and released amt. of growth factors by counting the samples for total I-125 activity. The authors obsd. that the adsorption of these growth factors seems to depend on two different parameters: first on the nature of the tested material, and second on the growth factors on their own. The release kinetics of the growth factors from the biodegradable implants can be described as a two **phase** process-a very rapid release during the first hours by an elution of not adsorbed protein, followed by a specific release, which depends upon the chem./phys. interaction of the material and the growth factor used. Analyzing the eluted proteins on SDS-PAGEs rh-VEGF was degraded into a smaller fragment with a size of around 15 kDa, while rxBMP-4 and rh-bFGF showed a complete degrdn. into fragments smaller than 3 kDa after more than 3 days. Although this in vitro study suggests that biodegradable implants might be successfully used as carriers for osteogenic growth factors, the different release kinetics as well as the alteration of their mol. structure including loss of biol. activity should be considered.

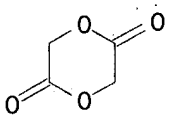
IT **26780-50-7**, Lactide-glycolide copolymer
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glass ceramic composites; adsorption and release properties of growth factors from biodegradable implants)

RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

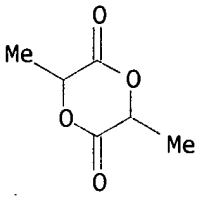
CM 1

CRN 502-97-6
CMF C4 H4 O4

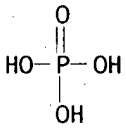


CM 2

CRN 95-96-5
CMF C6 H8 O4



IT **7758-87-4**, Tricalcium phosphate
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glass ceramics; adsorption and release properties of growth factors from biodegradable implants)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



●3/2 Ca

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC **63-7** (Pharmaceuticals)

AB The present investigation was performed to study the adsorption behavior of growth factors and their release characteristics from biodegradable implants in an in vitro study. The authors investigated the stability of growth factors administered on various **scaffolds**. The authors used **porous** tricalcium phosphate ceramics (.alpha.-TCP), a neutralized glass ceramics (GB9N), a composite (polylactide/-glycolide/GB9N), and solvent dehydrated human bone as carriers. Block shaped **scaffolds** (sized: 7 .times. 7 .times. 10 mm) were loaded with 5 .mu.g of either bone morphogenetic protein (rxBMP-4), basic fibroblast growth factor (rh-bFGF), or vascular endothelial growth factor (rh-VEGF) solved in 150 .mu.L PBS. The growth factors were labeled with Iodine-125 (I-125) for detecting the adsorbed and released amt. of growth factors by counting the samples for total I-125 activity. The authors obsd. that the adsorption of these growth factors seems to depend on two different parameters: first on the nature of the tested material, and second on the growth factors on their own. The release kinetics of the growth factors from the biodegradable implants can be described as a two **phase** process-a very rapid release during the first hours by an elution of not adsorbed protein, followed by a specific release, which depends upon the chem./phys. interaction of the material and the growth factor used. Analyzing the eluted proteins on SDS-PAGEs rh-VEGF was degraded into a smaller fragment with a size of around 15 kDa, while rxBMP-4 and rh-bFGF showed a complete degrdn. into fragments smaller than 3 kDa after more than 3 days. Although this in vitro study suggests that biodegradable implants might be successfully used as carriers for osteogenic growth factors, the different release kinetics as well as the alteration of their mol. structure including loss of biol. activity should be considered.

IT **26780-50-7**, Lactide-glycolide copolymer
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glass ceramic composites; adsorption and release properties of growth factors from biodegradable implants)
IT **7758-87-4**, Tricalcium phosphate
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glass ceramics; adsorption and release properties of growth factors from biodegradable implants)

L76 ANSWER 19 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:780648 HCAPLUS
DOCUMENT NUMBER: 135:335147
TITLE: Polymer-based injectable sustained release pharmaceutical compositions for peptide and protein drugs
INVENTOR(S): Lee, Hee-yong; Lee, Hye-suk; Kim, Jung-soo; Kim, Sang-beom; Lee, Ji-suk; Choi, Ho-il; Chang, Seung-gu
PATENT ASSIGNEE(S): Peptron Inc., S. Korea
SOURCE: PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001078687	A1	20011025	WO 2001-KR462	20010322
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1187602	A1	20020320	EP 2001-917893	20010322
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2003026844	A1	20030206	US 2002-18870	20020418

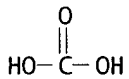
PRIORITY APPLN. INFO.:
KR 2000-20484 A 20000418
KR 2000-49344 A 20000824
WO 2001-KR462 W 20010322

AB Controlled and sustained release injectable pharmaceutical compns. for a biopharmaceutical, such as peptides and proteins are described. Processes for prepn. of an injectable sustained release compn. comprises (i) a step of prepg. biodegradable **porous** microspheres having accessible ionic functional groups, (ii) a step of encapsulating a biopharmaceutical into the microspheres through ionic interaction by suspending or equilibrating the microspheres in a soln. contg. the biopharmaceutical, and (iii) a step of recovering and freeze-drying the biopharmaceutical-incorporated microspheres. For example, microspheres were prepd. by water/oil/water double emulsion solvent evapn. method using a hydrophilic 50:50 PLGA polymer (RG 502H), which contains free carboxy end groups. Deionized water (800 mL) was added to 1 g of PLGA polymer dissolved in 2 mL of methylene chloride and emulsified by sonication for 30 s using a probe type ultrasonic generator. This primary emulsion was dispersed into

200 mL of deionized water contg. 0.5% polyvinyl alc. (wt./vol.) in a vessel which connected to a const. temp. controller and mixed well by stirring for 15 min at 2500 rpm, 25.degree. using a mixer. After mixing for another 15 min at 1500 rpm, 25.degree., temp. of continuous phase was increased to 40.degree. to evap. methylene chloride. After 1 h stirring at 40.degree., 1500 rpm, temp. was decreased to 25.degree.. The hardened microspheres were collected by centrifugation and washed twice with 200 mL of deionized water, and then freeze-dried. The microspheres obtained were used for incorporation of protein drugs, i.e., ovalbumin, bovine serum albumin, human growth hormone, RNase A, or lysozyme through ionic interaction by simply soaking and equilibrating the microspheres into a buffer soln. having an appropriate concn. of protein.

IT **471-34-1**, Calcium carbonate, biological studies
RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(alkalizing agent; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



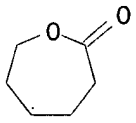
Ca

IT **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**, Polyglycolide **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26680-10-4**, Polylactide **26780-50-7**, Poly(lactide-co-glycolide) **34346-01-5**, Resomer RG 502H
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

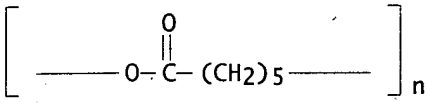
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

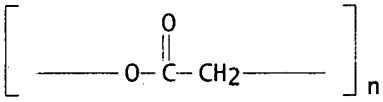
CRN 502-44-3
CMF C6 H10 O2



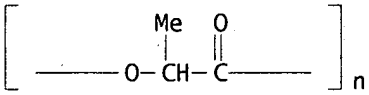
RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



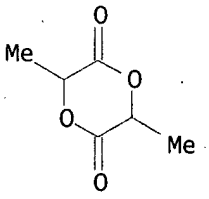
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26680-10-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

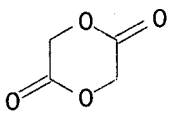
CRN 95-96-5
CMF C6 H8 O4



RN 26780-50-7 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

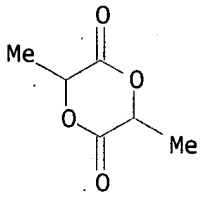
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

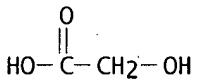
CRN 95-96-5
CMF C6 H8 O4



RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

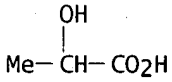
CM 1

CRN 79-14-1
CMF C2 H4 O3



CM 2

CRN 50-21-5
CMF C3 H6 O3



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Controlled and sustained release injectable pharmaceutical compns. for a biopharmaceutical, such as peptides and proteins are described. Processes for prepn. of an injectable sustained release compn. comprises (i) a step of prepg. biodegradable **porous** microspheres having accessible ionic functional groups, (ii) a step of encapsulating a biopharmaceutical into the microspheres through ionic interaction by suspending or equilibrating the microspheres in a soln. contg. the biopharmaceutical, and (iii) a step of recovering and freeze-drying the biopharmaceutical-incorporated microspheres. For example, microspheres were prepd. by water/oil/water double emulsion solvent evapn. method using a hydrophilic 50:50 PLGA polymer (RG 502H), which contains free carboxy end groups. Deionized water (800 mL) was added to 1 g of PLGA polymer dissolved in 2 mL of methylene chloride and emulsified by sonication for 30 s using a probe type ultrasonic generator. This primary emulsion was dispersed into 200 mL of deionized water contg. 0.5% polyvinyl alc. (wt./vol.) in a

vessel which connected to a const. temp. controller and mixed well by stirring for 15 min at 2500 rpm, 25.degree. using a mixer. After mixing for another 15 min at 1500 rpm, 25.degree., temp. of continuous phase was increased to 40.degree. to evap. methylene chloride. After 1 h stirring at 40.degree., 1500 rpm, temp. was decreased to 25.degree.. The hardened microspheres were collected by centrifugation and washed twice with 200 mL of deionized water, and then freeze-dried. The microspheres obtained were used for incorporation of protein drugs, i.e., ovalbumin, bovine serum albumin, human growth hormone, RNase A, or lysozyme through ionic interaction by simply soaking and equilibrating the microspheres into a buffer soln. having an appropriate concn. of protein.

IT Polymers, biological studies
Polyurethanes, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-based; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glycolide-based; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactide; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyamide-; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyether-; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyoxyalkylene-; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Anti-infective agents
Antibacterial agents
Antiviral agents
Carboxyl group
Cryoprotectants
Evaporation
Fibrinolytics
Freeze drying
Particle size
Phase separation
Pulmonary surfactant
Solvent extraction
(prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Annexins
Bone morphogenetic proteins

Caseins, biological studies
Collagens, biological studies
Fibrinogens
Hemoglobins
Interferons
Interleukin 1
Interleukins
Lymphotoxin
Ovalbumin
Platelet-derived growth factors
Polyanhydrides
Polycarbonates, biological studies
Polymer blends
Polysaccharides, biological studies
Proteins, general, biological studies
Transferrins
Transforming growth factors
Tumor necrosis factors
Zeins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT 102-71-6, Triethanolamine, biological studies 111-42-2, Diethanolamine, biological studies 141-43-5, Monoethanolamine, biological studies 144-55-8, Sodium bicarbonate, biological studies **471-34-1**, Calcium carbonate, biological studies 546-93-0, Magnesium carbonate 994-36-5, Sodium citrate 1309-48-4, Magnesium oxide, biological studies 6284-40-8, Meglumine 7778-49-6, Potassium citrate 14987-04-3, Magnesium trisilicate
RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(alkalizing agent; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT 121-54-0, Benzethonium chloride 151-21-3, Sodium lauryl sulfate, biological studies 577-11-7, Docusate sodium 1393-25-5, Secretin 1398-61-4, Chitin 1402-38-6, Oncostatin 8044-71-1, Cetrimide 9001-25-6, Blood-coagulation factor VII 9001-28-9, Factor IX 9001-63-2, Lysozyme 9002-01-1, Streptokinase 9002-60-2, Adrenocorticotrophic hormone, biological studies 9002-61-3, Human chorionic gonadotropin 9002-67-9, Luteinizing hormone 9002-68-0, Follicle stimulating hormone 9002-69-1, Relaxin 9002-71-5, Thyroid stimulating hormone 9002-72-6, Growth hormone 9002-89-5, Polyvinyl alcohol 9004-10-8, Insulin, biological studies 9004-53-9, Dextrin 9004-54-0, Dextran, biological studies 9004-61-9, Hyaluronic acid 9005-25-8, Starch, biological studies 9005-32-7, Alginic acid 9005-49-6, Heparin, biological studies 9007-12-9, Calcitonin 9007-27-6, Chondroitin 9007-92-5, Glucagon, biological studies 9011-97-6, Cholecystokinin 9012-76-4, Chitosan 9015-71-8, Corticotropin releasing factor 9034-39-3, Growth hormone releasing factor 9035-68-1, Proinsulin 9039-53-6, Urokinase 9041-92-3, .alpha.1-Antitrypsin 9054-89-1, Superoxide dismutase 9056-36-4, Keratan sulfate 9061-61-4, Nerve growth factor 11096-26-7, Erythropoietin 15802-18-3D, Cyanoacrylic acid, esters, polymers **24980-41-4**, Polycaprolactone 25104-18-1, Poly(L-lysine) **25248-42-4**, Polycaprolactone 25868-59-1 25931-47-9 **26009-03-0**, Polyglycolide **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26202-08-4, Polyglycolide **26680-10-4**, Polylactide **26780-50-7**, Poly(lactide-co-glycolide) 31621-87-1, Polydioxanone **34346-01-5**, Resomer RG 502H 37221-79-7, Vasoactive intestinal polypeptide 38000-06-5,

Poly(L-lysine) 52906-92-0, Motilin 57285-09-3, Inhibin 59392-49-3, Gastric inhibitory peptide 59763-91-6, Pancreatic polypeptide 61912-98-9, Insulin-like growth factor 62229-50-9, Epidermal growth factor 62683-29-8, Colony stimulating factor 67763-96-6, Somatomedin C 77272-10-7, Macrocortin 80043-53-4, Gastrin releasing peptide 82657-92-9, Prourokinase 83652-28-2, Calcitonin gene-related peptide 85637-73-6, Atrial natriuretic factor 113189-02-9, Antihemophilic factor 139639-23-9, Tissue plasminogen activator
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

L76 ANSWER 20 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:755398 HCAPLUS
DOCUMENT NUMBER: 137:52262
TITLE: Development of biodegradable **porous scaffolds** for tissue engineering
AUTHOR(S): Chen, Guoping; Ushida, Takashi; Tateishi, Tetsuya
CORPORATE SOURCE: Tissue Engineering Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, 305-8562, Japan
SOURCE: Materials Science & Engineering, C: Biomimetic and Supramolecular Systems (2001), C17(1-2), 63-69
CODEN: MSCEEE; ISSN: 0928-4931
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Three-dimensional biodegradable **porous scaffolds** play an important role in tissue engineering. A new method of prepg. **porous scaffolds** composed of synthetic biodegradable polymers was developed by combining pyrogen leaching and freeze-drying techniques using preprepared ice particulates as the pyrogen material. The **pore** structures of the polymer **sponges** could be manipulated by controlling processing variables such as the size and wt. fraction of the ice particulates and the polymer concn. The synthetic polymer **sponges** were further hybridized with collagen **microsponges** to prep. biodegradable hybrid **porous sponges** of synthetic polymer and collagen. The collagen **microsponges** were formed in the **pores** of synthetic polymer **sponges**. The hybrid **sponges** exhibited the advantages of both the synthetic polymers and collagen. Hybrid **sponges** of synthetic polymer, collagen, and inorg. hydroxyapatite were developed by depositing hydroxyapatite particulates on the surfaces of the collagen **microsponges** in the synthetic polymer-collagen **sponges**. The use of synthetic polymer **sponge** as a mech. skeleton facilitated the formation of these hybrid **sponges** into desired shapes, contributed good mech. strength and handling, while the collagen and hydroxyapatite facilitated cell seeding and promoted cell interaction.
IT **1306-06-5**, Hydroxyapatite **26780-50-7**, Lactide-glycolide copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable **porous scaffolds** for tissue engineering)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

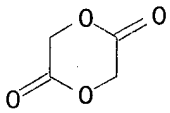
Component	Ratio	Component Registry Number

HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 26780-50-7 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

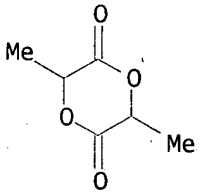
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

CRN 95-96-5
CMF C6 H8 O4



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Development of biodegradable **porous scaffolds** for tissue engineering

AB Three-dimensional biodegradable **porous scaffolds** play an important role in tissue engineering. A new method of prepg. **porous scaffolds** composed of synthetic biodegradable polymers was developed by combining pyrogen leaching and freeze-drying techniques using preprepared ice particulates as the pyrogen material. The **pore** structures of the polymer **sponges** could be manipulated by controlling processing variables such as the size and wt. fraction of the ice particulates and the polymer concn. The synthetic polymer **sponges** were further hybridized with collagen **microsponges** to prep. biodegradable hybrid **porous sponges** of synthetic polymer and collagen. The collagen **microsponges** were formed in the **pores** of synthetic polymer **sponges**. The hybrid **sponges** exhibited the advantages of both the synthetic polymers and collagen. Hybrid **sponges** of synthetic polymer, collagen, and inorg. hydroxyapatite were developed by depositing hydroxyapatite particulates on the surfaces of the collagen **microsponges** in the synthetic polymer-collagen **sponges**. The use of synthetic polymer **sponge** as a mech. skeleton facilitated the formation of these hybrid **sponges** into

desired shapes, contributed good mech. strength and handling, while the collagen and hydroxyapatite facilitated cell seeding and promoted cell interaction.

ST hydroxyapatite **collagen** lactide glycolide **sponge**

IT **Freeze drying**
Leaching
Pore structure
Prosthetic materials and Prosthetics
(biodegradable **porous scaffolds** for tissue engineering)

IT **Collagens**, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable **porous scaffolds** for tissue engineering)

IT Polymers, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable; biodegradable **porous scaffolds** for tissue engineering)

IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; biodegradable **porous scaffolds** for tissue engineering)

IT Medical goods
(**sponges**; biodegradable **porous scaffolds** for tissue engineering)

IT **1306-06-5**, Hydroxyapatite **26780-50-7**, Lactide-glycolide copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable **porous scaffolds** for tissue engineering)

L76 ANSWER 21 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:543281 HCAPLUS
DOCUMENT NUMBER: 136:90879
TITLE: Poly(DL-lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates
AUTHOR(S): Chen, Guoping; Ushida, Takashi; Tateishi, Tetsuya
CORPORATE SOURCE: Tissue Engineering Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, 305-8562, Japan
SOURCE: Journal of Biomedical Materials Research (2001), 57(1), 8-14
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel three-dimensional **porous scaffold** has been developed for bone tissue engineering by hybridizing synthetic poly(DL-lactic-co-glycolic acid) (PLGA), naturally derived collagen, and inorg. apatite. First, a **porous** PLGA sponge was prepd. Then, collagen microsponges were formed in the **pores** of the PLGA sponge. Finally, apatite particulates were deposited on the surfaces of the collagen microsponges in the **pores** of PLGA sponge. The PLGA-collagen sponge served as a template for apatite deposition, and the deposition was accomplished by alternate immersion of PLGA-collagen sponge

in CaCl2 and Na2HPO4 aq. solns. and centrifugation. The deposited particulates were small and scarce after one cycle of alternate immersion. Their no. and size increased with the no. of alternate immersion cycles. The surfaces of collagen microsponges were completely covered with apatite after three cycles of alternate immersion. The **porosity** of the hybrid sponge decreased gradually as the no. of alternate immersion increased. Energy-dispersive spectroscopy anal. and X-ray diffraction spectra showed that the calcium-to-phosphorus molar ratio of the deposited particulates and the level of crystallinity increased with the no. of alternate immersion cycles, and became almost the same as that of hydroxyapatite after four cycles of alternate immersion. The deposition process was controllable. Use of the PLGA sponge as a mech. skeleton facilitated formation of the PLGA-collagen-apatite hybrid sponge into desired shapes and collagen microsponges facilitated the uniform deposition of apatite particulates throughout the sponge. The PLGA-collagen-apatite hybrid sponge would serve as a useful three-dimensional **porous scaffold** for bone tissue engineering.

IT **1306-06-5**, Hydroxyapatite
RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Poly(DL-lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates

AB A novel three-dimensional **porous scaffold** has been developed for bone tissue engineering by hybridizing synthetic poly(DL-lactic-co-glycolic acid) (PLGA), naturally derived collagen, and inorg. apatite. First, a **porous** PLGA sponge was prepd. Then, collagen microsponges were formed in the **pores** of the PLGA sponge. Finally, apatite particulates were deposited on the surfaces of the collagen microsponges in the **pores** of PLGA sponge. The PLGA-collagen sponge served as a template for apatite deposition, and the deposition was accomplished by alternate immersion of PLGA-collagen sponge in CaCl2 and Na2HPO4 aq. solns. and centrifugation. The deposited particulates were small and scarce after one cycle of alternate immersion. Their no. and size increased with the no. of alternate immersion cycles. The surfaces of collagen microsponges were completely covered with apatite after three cycles of alternate immersion. The **porosity** of the hybrid sponge decreased gradually as the no. of alternate immersion increased. Energy-dispersive spectroscopy anal. and X-ray diffraction spectra showed that the calcium-to-phosphorus molar ratio of the deposited particulates and the level of crystallinity increased with the no. of alternate immersion cycles, and became almost the same as that of hydroxyapatite after four cycles of alternate immersion. The deposition process was controllable. Use of the PLGA sponge as a mech. skeleton facilitated formation of the PLGA-collagen-apatite hybrid sponge into desired shapes and collagen microsponges facilitated the uniform

deposition of apatite particulates throughout the sponge. The PLGA-collagen-apatite hybrid sponge would serve as a useful three-dimensional **porous scaffold** for bone tissue engineering.

ST lactate glycolate polymer sponge hybrid **collagen** bone

IT Polyesters, biological studies
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(hydroxycarboxylic acid-based; poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

IT Bone
(poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

IT Medical goods
(sponges; poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

IT **Collagens**, biological studies
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(type I; poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

IT 34346-01-5, Glycolic acid-lactic acid copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

IT **1306-06-5**, Hydroxyapatite
RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

IT 7647-14-5, Sodium chloride, biological studies
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

L76 ANSWER 22 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:474508 HCAPLUS
DOCUMENT NUMBER: 136:221654
TITLE: Processing of bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technologies
AUTHOR(S): Hutmacher, D. W.; Zein, I.; Teoh, S. H.
CORPORATE SOURCE: Laboratory for Biomedical Engineering (LBME) Centre for Biomedical Materials, Applications and Technology (BIOMAT), National University of Singapore, Singapore, 119260, Singapore
SOURCE: Processing and Fabrication of Advanced Materials VIII, Proceedings of a Symposium, 8th, Singapore, Singapore, Sept. 8-10, 1999 (2000), Meeting Date 1999, 201-206. Editor(s): Khor, K. A. World Scientific Publishing Co. Pte. Ltd.: Singapore, Singapore.
CODEN: 69BLIF
DOCUMENT TYPE: Conference

LANGUAGE: English

AB Tissue engineering is based on the concept that cells seeded on three-dimensional (3D) bioresorbable **scaffolds** can recapitulate native tissues under appropriate in vitro and in vivo conditions. The necessity of a **scaffold** structure as the basic template of engineering tissues has encouraged the use of advanced manufg. technologies. For example, rapid prototyping (RP) technologies such as fused deposition modeling (FDM) and three-dimensional printing (3DP) can be used to fabricate complex 3D structures based on 2D cross-sectional data obtained from slicing a computer-aided design (CAD) model. FDM is currently being applied in our lab. to fabricate 3D **scaffolds** of various **porosity** and micro-architecture. This fabrication technol. offers the ease and flexibility of varying the **scaffold** characteristics to meet specific structural and functional requirements of the tissue of interest. The FDM process involves the extrusion of a polymer filament through a heated nozzle and deposition as thin **layers** to build a CAD software-designed phys. structure. Our current research focuses on the investigation of a bioresorbable composite matrix, namely poly(caprolactone) (PCL) in combination with hydroxyapatite (HA) as the materials of choice to produce **scaffolds** for tissue engineering bone.

IT **1306-06-5**, Hydroxyapatite **24980-41-4**, Poly(caprolactone) **25248-42-4**, Poly(caprolactone)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

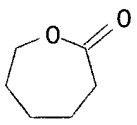
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

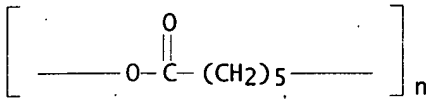
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 502-44-3
CMF C6 H10 O2



RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Processing of bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technologies

CC **63-7** (Pharmaceuticals)

AB Tissue engineering is based on the concept that cells seeded on three-dimensional (3D) bioresorbable **scaffolds** can recapitulate native tissues under appropriate in vitro and in vivo conditions. The necessity of a **scaffold** structure as the basic template of engineering tissues has encouraged the use of advanced manufg. technologies. For example, rapid prototyping (RP) technologies such as fused deposition modeling (FDM) and three-dimensional printing (3DP) can be used to fabricate complex 3D structures based on 2D cross-sectional data obtained from slicing a computer-aided design (CAD) model. FDM is currently being applied in our lab. to fabricate 3D **scaffolds** of various **porosity** and micro-architecture. This fabrication technol. offers the ease and flexibility of varying the **scaffold** characteristics to meet specific structural and functional requirements of the tissue of interest. The FDM process involves the extrusion of a polymer filament through a heated nozzle and deposition as thin **layers** to build a CAD software-designed phys. structure. Our current research focuses on the investigation of a bioresorbable composite matrix, namely poly(caprolactone) (PCL) in combination with hydroxyapatite (HA) as the materials of choice to produce **scaffolds** for tissue engineering bone.

ST caprolactone hydroxyapatite **scaffold** bone

IT Bone
(artificial; processing of bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

IT Prosthetic materials and Prosthetics
Surface structure
(bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

IT Coating process
(extrusion; bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(lactone-based; bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

IT **1306-06-5**, Hydroxyapatite **24980-41-4**, Poly(caprolactone) **25248-42-4**, Poly(caprolactone)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

L76 ANSWER 23 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:355499 HCAPLUS
DOCUMENT NUMBER: 135:127136

TITLE: O-Carboxymethyl-**Chitin** Concentration in Granulocytes during Bone Repair
AUTHOR(S): Tokura, Seiichi; Tamura, Hiroshi
CORPORATE SOURCE: Faculty of Engineering and HRC, Kansai University, Suita Osaka, 564-8680, Japan
SOURCE: Biomacromolecules (2001), 2(2), 417-421
CODEN: BOMAF6; ISSN: 1525-7797
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Peroral and i.v. administrations of 14C-labeled carboxymethyl-chitin (CM-chitin) revealed that CM-chitin accumulated in bone marrow. Thus, a composite of CM-chitin with hydroxyapatite (HA) was prepd. to examine the bone repairing properties by animal and cell line expts. The new bone formation of CM-chitin.cntdot.HA composite was superior to that of CM-chitin, HA, or blank. A **porous** CM-chitin.cntdot.HA composite is a functional material which could act as a **scaffolding** of osteoblast-like cells, a barrier to ingrowth of fibrous connective tissues. The cytotoxicity of CM-chitin was evaluated using the MC3T3-E1 cell line, and the authors found that control of degree of deacetylation is a very important factor in using CM-chitin as bone repairing material.

IT **1306-06-5**, Hydroxyapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite implant contg.; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI O-Carboxymethyl-**Chitin** Concentration in Granulocytes during Bone Repair

AB Peroral and i.v. administrations of 14C-labeled carboxymethyl-chitin (CM-chitin) revealed that CM-chitin accumulated in bone marrow. Thus, a composite of CM-chitin with hydroxyapatite (HA) was prepd. to examine the bone repairing properties by animal and cell line expts. The new bone formation of CM-chitin.cntdot.HA composite was superior to that of CM-chitin, HA, or blank. A **porous** CM-chitin.cntdot.HA composite is a functional material which could act as a **scaffolding** of osteoblast-like cells, a barrier to ingrowth of fibrous connective tissues. The cytotoxicity of CM-chitin was evaluated using the MC3T3-E1 cell line, and the authors found that control of degree of deacetylation is a very important factor in using CM-chitin as bone repairing material.

ST carboxymethyl **chitin** granulocyte bone repair composite implant

IT Bone marrow
Polymorphonuclear leukocyte
Wound healing
(O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

IT Prosthetic materials and Prosthetics
(composites, implants; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

IT Bone formation

(repair; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

IT **1306-06-5**, Hydroxyapatite 52108-64-2, 6-O-Carboxymethyl-**chitin**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite implant contg.; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

L76 ANSWER 24 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:265567 HCAPLUS
DOCUMENT NUMBER: 134:271315
TITLE: Bio-artificial substrate based on polymer combination with fibroin for the production of animal and, in particular, human tissues and organs
INVENTOR(S): Armato, Ubaldo; Migliaresi, Claudio; Motta, Antonella
PATENT ASSIGNEE(S): Consorzio per Gli Studi Universitari, Italy
SOURCE: PCT Int. Appl., 75 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001025403	A2	20010412	WO 2000-IT382	20000928
WO 2001025403	A3	20011108		
W: AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CR, CU, CZ, DM, DZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
IT 1309453	B1	20020123	IT 1999-VR82	19991001
EP 1218490	A2	20020703	EP 2000-969802	20000928
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				

PRIORITY APPLN. INFO.: IT 1999-VR82 A 19991001
WO 2000-IT382 W 20000928

AB A substrate suitable for the survival, the proliferation and the correct differentiation and functioning of specialized tissue cells of the human and animal body, consisting of a material that is bio-compatible and bio-resorbable in pre-determinable times, which can be transplanted or implanted onto or connected with the body in order to achieve a complete integration of the transplanted, implanted or connected tissue with the other cell systems and their functions in the organism onto which the transplant or the implant or with which the connection has been made, and comprising a mixt. and/or combination of natural and/or synthetic polymers in which fibroin is present. The in vitro culture of normal neonatal rat liver hepatocytes was grown on plastic flasks with treated or untreated surfaces to increase cell adhesion, fibroin membranes, and ultrathin **porous** disks of nontoxic polyethylene. Enrichment with growth factors increased the size of the proliferating hepatocellular fraction and, at the same time , of the hepatocellular population as a whole.

AB A substrate suitable for the survival, the proliferation and the correct differentiation and functioning of specialized tissue cells of the human and animal body, consisting of a material that is bio-compatible and bio-resorbable in pre-determinable times, which can be transplanted or implanted onto or connected with the body in order to achieve a complete

integration of the transplanted, implanted or connected tissue with the other cell systems and their functions in the organism onto which the transplant or the implant or with which the connection has been made, and comprising a mixt. and/or combination of natural and/or synthetic polymers in which fibroin is present. The in vitro culture of normal neonatal rat liver hepatocytes was grown on plastic flasks with treated or untreated surfaces to increase cell adhesion, fibroin membranes, and ultrathin **porous** disks of nontoxic polyethylene. Enrichment with growth factors increased the size of the proliferating hepatocellular fraction and, at the same time , of the hepatocellular population as a whole.

IT Prosthetic materials and Prosthetics
(alloys, implants, **scaffold**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT **Biopolymers**
Fibroin
Plastics, biological studies
Polymers, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT Prosthetic materials and Prosthetics
(ceramic, implants, **scaffolds**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT Prosthetic materials and Prosthetics
(polymers, **scaffold**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT **Ceramics**
(prosthetic implants, **scaffolds**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

L76 ANSWER 25 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:31372 HCAPLUS
DOCUMENT NUMBER: 134:105910
TITLE: Process for manufacturing polymeric biomedical **foams**
INVENTOR(S): Vyakarnam, Murty N.; Roller, Mark B.; Gorky, David V.; Scopelianos, Angelo George
PATENT ASSIGNEE(S): Ethicon, Inc., USA
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001002033	A1	20010111	WO 2000-US163	20000105
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6355699	B1	20020312	US 1999-345095	19990630

PRIORITY APPLN. INFO.: US 1999-345095 A 19990630

AB The present invention provides an improved lyophilization process for forming biocompatible **foam** structures. The process allows the **foam** structures to be tailored for specific end uses. The **foams** formed by this process are well suited to be used in medical applications such as tissue engineering. The **foam** structures may also contain pharmaceutically active substances. A random copolymer of .epsilon.-caprolactone-glycolide was prepd. was synthesized by ring opening polymn. reaction. The inherent viscosity of the copolymer was detd. in hexafluoroisopropanol. A biomedical **foam** was obtained based on the above polymer.

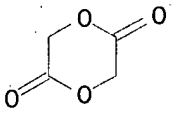
IT **41706-81-4P**, .epsilon.-Caprolactone-glycolide copolymer
65408-67-5P, .epsilon.-Caprolactone-L-lactide copolymer
70524-20-8P, .epsilon.-Caprolactone-lactide copolymer
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(process for manufg. polymeric biomedical **foams**)

RN 41706-81-4 HCAPLUS

CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

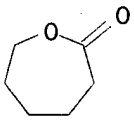
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

CRN 502-44-3
CMF C6 H10 O2



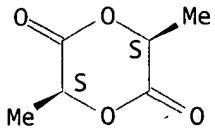
RN 65408-67-5 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

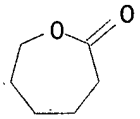
CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

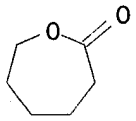
CRN 502-44-3
CMF C6 H10 O2



RN 70524-20-8 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

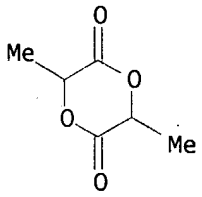
CM 1

CRN 502-44-3
CMF C6 H10 O2



CM 2

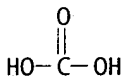
CRN 95-96-5
CMF C6 H8 O4



IT **471-34-1**, Calcium carbonate, biological studies **9005-32-7**, **Alginic acid 10103-46-5**, Calcium phosphate **24980-41-4**, Poly(.epsilon.-caprolactone) **25248-42-4**, Poly[oxy(1-oxo-1,6-hexanediyl)] **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26063-00-3**, Poly(hydroxybutyrate) **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26680-10-4**,

Polylactide **26744-04-7**, Poly(.beta.-butyrolactone), sru
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(process for manufg. polymeric biomedical **foams**)

RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)

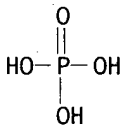


Ca

RN 9005-32-7 HCAPLUS
CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 10103-46-5 HCAPLUS
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)

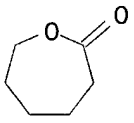


x Ca

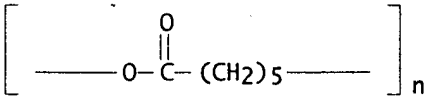
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 502-44-3
CMF C6 H10 O2

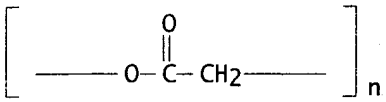


RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)

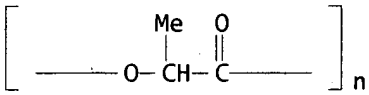


RN 26009-03-0 HCAPLUS

CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



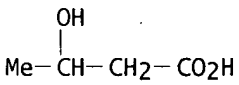
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26063-00-3 HCAPLUS
CN Butanoic acid, 3-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

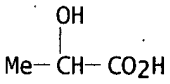
CRN 300-85-6
CMF C4 H8 O3



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

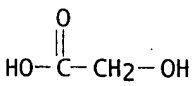
CRN 50-21-5
CMF C3 H6 O3



RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

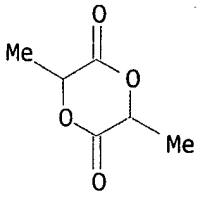
CRN 79-14-1
CMF C2 H4 O3



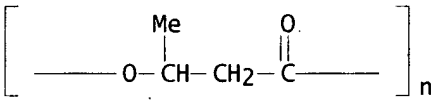
RN 26680-10-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5
CMF C6 H8 O4



RN 26744-04-7 HCAPLUS
CN Poly[oxy(1-methyl-3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Process for manufacturing polymeric biomedical **foams**

AB The present invention provides an improved lyophilization process for forming biocompatible **foam** structures. The process allows the **foam** structures to be tailored for specific end uses. The **foams** formed by this process are well suited to be used in medical applications such as tissue engineering. The **foam** structures may also contain pharmaceutically active substances. A random copolymer of .epsilon.-caprolactone-glycolide was prepd. was synthesized by ring opening polymn. reaction. The inherent viscosity of the copolymer was detd. in hexafluoroisopropanol. A biomedical **foam** was obtained based on the above polymer.

ST polymer biomedical **foam** prepn; polyester biomedical **foam** prepn

IT **Polyesters, biological studies**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(caprolactone-based; process for manufg. polymeric biomedical **foams**)

IT Bone
(demineralized particles; process for manufg. polymeric biomedical **foams**)

IT Medical goods
(dressings; process for manufg. polymeric biomedical **foams**)

IT Drug delivery systems
(**foams**; process for manufg. polymeric biomedical **foams**)

IT **Polyesters, biological studies**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(glycolide-based; process for manufg. polymeric biomedical

foams)
IT **Prosthetic materials and Prosthetics**
(implants; process for manufg. polymeric biomedical **foams**)
IT **Polyesters, biological studies**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(lactic acid-based; process for manufg. polymeric biomedical **foams**)
IT **Polyesters, biological studies**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(lactide; process for manufg. polymeric biomedical **foams**)
IT Analgesics
Anti-infective agents
Anti-inflammatory agents
Freeze drying
Glass transition temperature
Pore size distribution
(process for manufg. polymeric biomedical **foams**)
IT Polymer blends
RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(process for manufg. polymeric biomedical **foams**)
IT Gelatins, biological studies
Growth factors, animal
Hormones, animal, biological studies
Polyester rubber
Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(process for manufg. polymeric biomedical **foams**)
IT **41706-81-4P**, .epsilon.-Caprolactone-glycolide copolymer
65408-67-5P, .epsilon.-Caprolactone-L-lactide copolymer
70524-20-8P, .epsilon.-Caprolactone-lactide copolymer
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(process for manufg. polymeric biomedical **foams**)
IT 50-99-7, Dextrose, biological studies 57-50-1, Sucrose, biological studies 63-42-3, Lactose 68-04-2, Sodium citrate 69-79-4, Maltose **471-34-1**, Calcium carbonate, biological studies 868-18-8, Sodium tartrate, biological studies 2453-03-4D, Trimethylene carbonate, derivs, polymers 7447-40-7, Potassium chloride (KCl), biological studies 7647-14-5, Sodium chloride, biological studies **9005-32-7**, **Alginic acid** 9012-36-6, Agarose 10043-52-4, Calcium chloride (CaCl2), biological studies **10103-46-5**, Calcium phosphate **24980-41-4**, Poly(.epsilon.-caprolactone) **25248-42-4**, Poly[oxy(1-oxo-1,6-hexanediyl)] **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26063-00-3**, Poly(hydroxybutyrate) **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid 26202-08-4, Polyglycolide 26354-94-9, Poly(.delta.-valerolactone) 26499-05-8, Poly[oxy(1-oxo-1,5-pentanediyl)] 26519-61-9, .epsilon.-Caprolactone-p-dioxanone copolymer **26680-10-4**, Polylactide **26744-04-7**, Poly(.beta.-butyrolactone), sru 28728-97-4, Poly(.gamma.-butyrolactone), SRU 29223-92-5, Poly(p-dioxanone) 31213-03-3, Poly(.gamma.-butyrolactone) 31621-87-1, Poly(p-dioxanone), SRU 31852-84-3, Poly(trimethylene carbonate) 36486-76-7, Poly(.beta.-butyrolactone) 50862-75-4, Poly(oxycarbonyloxy-1,3-propanediyl) 75734-93-9, Glycolide-trimethylene carbonate copolymer 102190-94-3, Poly(hydroxyvaleric acid) 121425-66-9 121425-79-4 129515-24-8 136233-52-8, p-Dioxanone-lactide copolymer 158054-04-7,

Poly(1,4-dioxepan-2-one) 159350-71-7, .epsilon.-Decalactone homopolymer 159350-72-8, Poly[oxy(1-butyl-6-oxo-1,6-hexanediyl)] 170865-33-5 175736-55-7 318490-51-6 318490-54-9 318490-55-0
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(process for manufg. polymeric biomedical **foams**)

L76 ANSWER 26 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:898813 HCAPLUS
DOCUMENT NUMBER: 135:157581
TITLE: A hybrid sponge of poly(DL-lactic-co-glycolic acid), **collagen** and apatite
AUTHOR(S): Chen, Guoping; Ushida, Takashi; Tateishi, Tetsuya
CORPORATE SOURCE: 3D Tissue Engineering Group, National Institute for Advanced Interdisciplinary Research, Tsukuba, 305-8562, Japan
SOURCE: Key Engineering Materials (2001), 192-195(Bioceramics), 753-756
CODEN: KEMAEY; ISSN: 1013-9826
PUBLISHER: Trans Tech Publications Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Biodegradable poly(DL-lactic-co-glycolic acid), collagen and apatite have been hybridized to prep. a three-dimensional **porous** **scaffold** for hard tissue engineering. Collagen microsponges were first nested in the **pores** of a PLGA sponge to prep. PLGA-collagen sponge. And then the surfaces of collagen microsponges were deposited with apatite particulates by alternate immersion of PLGA-collagen sponge in CaCl2 and Na2HPO4 aq. solns. to prep. the PLGA-collagen-apatite hybrid sponge. Observation of the hybrid sponge by SEM showed that collagen microsponges with interconnected **pore** structures were formed in the **pores** of PLGA sponge and that the **pore** surfaces were also covered with collagen. The deposited apatite particulates were flake-like and became denser and grew larger with repeated alternate immersion cycles. Energy-dispersive spectroscopy anal. and X-ray diffraction demonstrated that the deposited particulates were hydroxyapatite.
IT **1306-06-5**, Apatite
RL: DEV (Device component use); FMU (Formation, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(hybrid sponge of poly(lactic-glycolic acid), **collagen** and apatite)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI A hybrid sponge of poly(DL-lactic-co-glycolic acid), **collagen** and apatite
AB Biodegradable poly(DL-lactic-co-glycolic acid), collagen and apatite have been hybridized to prep. a three-dimensional **porous** **scaffold** for hard tissue engineering. Collagen microsponges were first nested in the **pores** of a PLGA sponge to prep.

PLGA-collagen sponge. And then the surfaces of collagen microsponges were deposited with apatite particulates by alternate immersion of PLGA-collagen sponge in CaCl2 and Na2HPO4 aq. solns. to prep. the PLGA-collagen-apatite hybrid sponge. Observation of the hybrid sponge by SEM showed that collagen microsponges with interconnected **pore** structures were formed in the **pores** of PLGA sponge and that the **pore** surfaces were also covered with collagen. The deposited apatite particulates were flake-like and became denser and grew larger with repeated alternate immersion cycles. Energy-dispersive spectroscopy anal. and X-ray diffraction demonstrated that the deposited particulates were hydroxyapatite.

ST sponge polylactide glycolide **collagen** apatite

IT Animal tissue
(hard; hybrid sponge of poly(lactic-glycolic acid), **collagen** and apatite)

IT **Collagens**, biological studies
RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hybrid sponge of poly(lactic-glycolic acid), **collagen** and apatite)

IT Medical goods
(sponges; hybrid sponge of poly(lactic-glycolic acid), **collagen** and apatite)

IT **1306-06-5**, Apatite
RL: DEV (Device component use); FMU (Formation, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(hybrid sponge of poly(lactic-glycolic acid), **collagen** and apatite)

IT 34346-01-5, Poly(DL-lactic acid-glycolic acid)
RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hybrid sponge of poly(lactic-glycolic acid), **collagen** and apatite)

IT 7558-79-4, Disodium hydrogen phosphate 10043-52-4, Calcium chloride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hybrid sponge of poly(lactic-glycolic acid), **collagen** and apatite)

L76 ANSWER 27 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:872248 HCAPLUS
DOCUMENT NUMBER: 134:152596
TITLE: Engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**
AUTHOR(S): Ma, Peter X.; Zhang, Ruiyun; Xiao, Guozhi; Franceschi, Renny
CORPORATE SOURCE: Department of Biologic and Materials Sciences, Macromolecular Science and Engineering Center, University of Michigan, Ann Arbor, MI, 48109, USA
SOURCE: Journal of Biomedical Materials Research (2000), Volume Date 2001, 54(2), 284-293
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Engineering new bone tissue with cells and a synthetic extracellular matrix (**scaffolding**) represents a new approach for the regeneration of mineralized tissues compared with the transplantation of

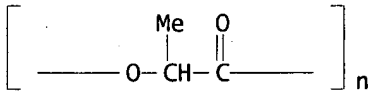
bone (autografts or allografts). In the present work, highly **porous** poly(L-lactic acid) (PLLA) and PLLA/hydroxyapatite (HAP) composite **scaffolds** were prepd. with a thermally induced **phase** sepn. technique. The **scaffolds** were seeded with osteoblastic cells and cultured in vitro. In the pure PLLA **scaffolds**, the osteoblasts attached primarily on the outer surface of the polymer. In contrast, the osteoblasts penetrated deep into the PLLA/HAP **scaffolds** and were uniformly distributed. The osteoblast survival percentage in the PLLA/HAP **scaffolds** was superior to that in the PLLA **scaffolds**. The osteoblasts proliferated in both types of the **scaffolds**, but the cell no. was always higher in the PLLA/HAP composite **scaffolds** during 6 wk of in vitro cultivation. Bone-specific markers (mRNAs encoding bone sialoprotein and osteocalcin) were expressed more abundantly in the PLLA/HAP composite **scaffolds** than in the PLLA **scaffolds** . The new tissue increased continuously in the PLLA/HAP composite **scaffolds**, whereas new tissue formed only near the surface of pure PLLA **scaffolds**. These results demonstrate that HAP imparts osteocond. and the highly **porous** PLLA/HAP composite **scaffolds** are superior to pure PLLA **scaffolds** for bone tissue engineering.

IT **1306-06-5**, Hydroxyapatite **26161-42-2 26811-96-1** , Poly(L-lactic acid)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**)

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 26161-42-2 HCAPLUS
CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)

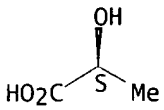


RN 26811-96-1 HCAPLUS
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4
CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**

CC **63-7** (Pharmaceuticals)

AB Engineering new bone tissue with cells and a synthetic extracellular matrix (**scaffolding**) represents a new approach for the regeneration of mineralized tissues compared with the transplantation of bone (autografts or allografts). In the present work, highly **porous** poly(L-lactic acid) (PLLA) and PLLA/hydroxyapatite (HAP) composite **scaffolds** were prepd. with a thermally induced **phase** sepn. technique. The **scaffolds** were seeded with osteoblastic cells and cultured in vitro. In the pure PLLA **scaffolds**, the osteoblasts attached primarily on the outer surface of the polymer. In contrast, the osteoblasts penetrated deep into the PLLA/HAP **scaffolds** and were uniformly distributed. The osteoblast survival percentage in the PLLA/HAP **scaffolds** was superior to that in the PLLA **scaffolds**. The osteoblasts proliferated in both types of the **scaffolds**, but the cell no. was always higher in the PLLA/HAP composite **scaffolds** during 6 wk of in vitro cultivation. Bone-specific markers (mRNAs encoding bone sialoprotein and osteocalcin) were expressed more abundantly in the PLLA/HAP composite **scaffolds** than in the PLLA **scaffolds** . The new tissue increased continuously in the PLLA/HAP composite **scaffolds**, whereas new tissue formed only near the surface of pure PLLA **scaffolds**. These results demonstrate that HAP imparts osteocond. and the highly **porous** PLLA/HAP composite **scaffolds** are superior to pure PLLA **scaffolds** for bone tissue engineering.

ST polylactide hydroxyapatite composite **scaffold** bone formation; extracellular matrix polylactide hydroxyapatite **scaffold** bone

IT Prosthetic materials and Prosthetics
(composites, implants, **scaffolds**; engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**)

IT Bone formation
Cell adhesion
Cell proliferation
Extracellular matrix
Osteoblast
Porosity
(engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**)

IT **1306-06-5**, Hydroxyapatite **26161-42-2 26811-96-1** , Poly(L-lactic acid)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineering new bone tissue in vitro on highly **porous**

poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**
)

L76 ANSWER 28 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:872234 HCAPLUS
DOCUMENT NUMBER: 134:152585
TITLE: Biologically and chemically optimized composites of carbonated apatite and polyglycolide as bone substitution materials
AUTHOR(S): Linhart, Wolfgang; Peters, Fabian; Lehmann, Wolfgang; Schwarz, Karsten; Schilling, Arndt Friedrich; Amling, Michael; Rueger, Johannes Maria; Epple, Matthias
CORPORATE SOURCE: Department of Trauma Surgery, Hamburg University School of Medicine, Hamburg, 20246, Germany
SOURCE: Journal of Biomedical Materials Research (2000), Volume Date 2001, 54(2), 162-171
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB We report on the development and characterization of a new composite material consisting of amorphous carbonated apatite, Ca5(PO4,CO3)3(OH), and microstructured poly(hydroxyacetic acid), polyglycolide (PGA). This material is able to keep the pH of a surrounding soln. within the physiol. range (7.2-7.6). This was achieved by chem. fine-tuning of the counterplay between the acidic degrdn. of the polyester and the basic dissoln. of calcium phosphate. Microporous samples with **pore** sizes of <1 .mu.m and compact samples were prepd. The biol. behavior was assayed in vitro by long-term osteoblast culture. Morphol. and biochem. analyses of cell differentiation revealed excellent biocompatibility, leading to cell attachment, collagen and osteocalcin expression, and mineral deposition. This material could be of use as a bio-degradable bone substitution material and as a **scaffold** for tissue engineering.

IT **1306-06-5**, Hydroxyapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(carbonate-substituted; biol. and chem. optimized composites of carbonated apatite and polyglycolide as bone substitution materials)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB We report on the development and characterization of a new composite material consisting of amorphous carbonated apatite, Ca5(PO4,CO3)3(OH), and microstructured poly(hydroxyacetic acid), polyglycolide (PGA). This material is able to keep the pH of a surrounding soln. within the physiol. range (7.2-7.6). This was achieved by chem. fine-tuning of the counterplay between the acidic degrdn. of the polyester and the basic dissoln. of calcium phosphate. Microporous samples with **pore** sizes of <1 .mu.m and compact samples were prepd. The biol. behavior was assayed in vitro by long-term osteoblast culture. Morphol. and biochem. analyses of cell differentiation revealed excellent biocompatibility,

leading to cell attachment, collagen and osteocalcin expression, and mineral deposition. This material could be of use as a bio-degradable bone substitution material and as a **scaffold** for tissue engineering.

IT **Collagens**, biological studies
Osteocalcins
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(biol. and chem. optimized composites of carbonated apatite and polyglycolide as bone substitution materials)

IT **1306-06-5**, Hydroxyapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(carbonate-substituted; biol. and chem. optimized composites of carbonated apatite and polyglycolide as bone substitution materials)

L76 ANSWER 29 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:698613 HCAPLUS
DOCUMENT NUMBER: 134:61472
TITLE: Bioabsorbable **scaffolds** for guided bone regeneration and generation
AUTHOR(S): Kellomaki, M.; Niiranen, H.; Puumanen, K.; Ashammakhi, N.; Waris, T.; Tormala, P.
CORPORATE SOURCE: Institute of Biomaterials, Tampere University of Technology, Tampere, 33101, Finland
SOURCE: Biomaterials (2000), 21(24), 2495-2505
CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

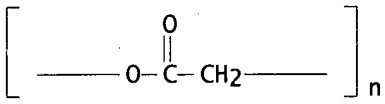
AB Several different bioabsorbable **scaffolds** designed and manufd. for guided bone regeneration and generation were developed. In order to enhance the bioactivity and potential osteocond. of the **scaffolds**, different bioabsorbable polymers, composites of polymer and bioactive glass, and textured surface structures of the manufd. devices and composites were investigated in in vitro studies and exptl. animal models. Solid, self-reinforced polyglycolide (SR-PGA) rods and self-reinforced poly(L-lactide) (SR-PLLA) rods were successfully used as **scaffolds** for bone formation in muscle by free tibial periosteal grafts in animal expts. In an exptl. maxillary cleft model, a bioabsorbable composite membrane of .vepsiln.-caprolactone and L-lactic acid 50/50 copolymer (PCL/LLA) film and mesh and poly(DL-lactide) (96:4) (PLA96) mesh were found to be suitable materials for guiding bone regeneration in the cleft defect area. The idea of solid **layer** and **porous layer** combined together was also transferred to stiff composite of poly(DL-lactide) (PLA70) plate and PLA96 mesh which structure is introduced. The osteocond. of several different biodegradable composites of polymers and bioactive glass (BG) was shown by apatite formation in vitro. Three composites studied were self-reinforced composite of PLA70 and bioactive glass (SR-(PLA70+BG)), SR-PLA70 plate coated with BG spheres, and Polyactive with BG.

IT **1305-78-8**, Calcium oxide, biological studies **26009-03-0**, Polyglycolide **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26161-42-2** **26680-10-4**, Poly(DL-lactide) **33135-50-1**, Poly(L-lactide)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioabsorbable **scaffolds** for guided bone regeneration and generation)

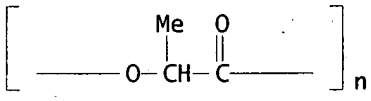
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

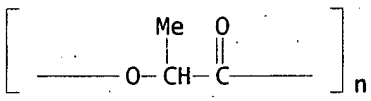
RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



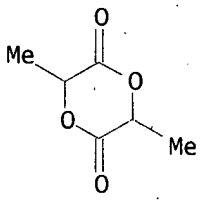
RN 26161-42-2 HCAPLUS
CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



RN 26680-10-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5
CMF C6 H8 O4

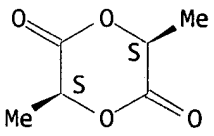


RN 33135-50-1 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



REFERENCE COUNT: 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Bioabsorbable **scaffolds** for guided bone regeneration and generation

CC **63-7** (Pharmaceuticals)

AB Several different bioabsorbable **scaffolds** designed and manufd. for guided bone regeneration and generation were developed. In order to enhance the bioactivity and potential osteocond. of the **scaffolds**, different bioabsorbable polymers, composites of polymer and bioactive glass, and textured surface structures of the manufd. devices and composites were investigated in in vitro studies and exptl. animal models. Solid, self-reinforced polyglycolide (SR-PGA) rods and self-reinforced poly(L-lactide) (SR-PLLA) rods were successfully used as **scaffolds** for bone formation in muscle by free tibial periosteal grafts in animal expts. In an exptl. maxillary cleft model, a bioabsorbable composite membrane of .vepsiln.-caprolactone and L-lactic acid 50/50 copolymer (PCL/LLA) film and mesh and poly(DL-lactide) (96:4) (PLA96) mesh were found to be suitable materials for guiding bone regeneration in the cleft defect area. The idea of solid **layer** and **porous layer** combined together was also transferred to stiff composite of poly(DL-lactide) (PLA70) plate and PLA96 mesh which structure is introduced. The osteocond. of several different biodegradable composites of polymers and bioactive glass (BG) was shown by apatite formation in vitro. Three composites studied were self-reinforced composite of PLA70 and bioactive glass (SR-(PLA70+BG)), SR-PLA70 plate coated with BG spheres, and Polyactive with BG.

ST bioabsorbable **scaffold** polyester bone regeneration; bioglass composite polyester bioabsorbable bone regeneration

IT Bone
Bone formation
Extrusion of plastics and rubbers
(bioabsorbable **scaffolds** for guided bone regeneration and generation)

IT Prosthetic materials and Prosthetics
(bioactive glass; bioabsorbable **scaffolds** for guided bone regeneration and generation)

IT Phosphosilicate glasses
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(calcium magnesium potassium sodium phosphosilicate; bioabsorbable **scaffolds** for guided bone regeneration and generation)

IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-based; bioabsorbable **scaffolds** for guided bone regeneration and generation)

IT Prosthetic materials and Prosthetics
(composites, implants; bioabsorbable **scaffolds** for guided bone regeneration and generation)

IT **Molding f plastics and rubbers**
(compression; bioabsorbable **scaffolds** for guided bone

regeneration and generation)
IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glycolide-based; bioabsorbable **scaffolds** for guided bone regeneration and generation)
IT Prosthetic materials and Prosthetics
(implants; bioabsorbable **scaffolds** for guided bone regeneration and generation)
IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactide; bioabsorbable **scaffolds** for guided bone regeneration and generation)
IT Silicate glasses
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sodium silicate, calcium magnesium potassium sodium phosphosilicate; bioabsorbable **scaffolds** for guided bone regeneration and generation)
IT Bone
(tibia; bioabsorbable **scaffolds** for guided bone regeneration and generation)
IT **1305-78-8**, Calcium oxide, biological studies 1309-48-4, Magnesium oxide (MgO), biological studies 1313-59-3, Sodium oxide (Na2O), biological studies 1314-56-3, Phosphorus pentoxide, biological studies 7631-86-9, Silica, biological studies 12136-45-7, Potassium oxide (K2O), biological studies **26009-03-0**, Polyglycolide **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26161-42-2** 26202-08-4, Polyglycolide **26680-10-4**, Poly(DL-lactide) **33135-50-1**, Poly(L-lactide) 66844-36-8, .vepsiln.-Caprolactone-L-lactic acid copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioabsorbable **scaffolds** for guided bone regeneration and generation)

L76 ANSWER 30 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:553459 HCAPLUS
DOCUMENT NUMBER: 133:155511
TITLE: Highly-mineralized osteogenic sponge compositions, and uses thereof
INVENTOR(S): McKay, William F.
PATENT ASSIGNEE(S): SDGI Holdings, Inc., USA
SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000045871	A1	20000810	WO 2000-US3043	20000204

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1150726 A1 20011107 EP 2000-905989 20000204

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

JP 2002536077 T2 20021029 JP 2000-596990 20000204

PRIORITY APPLN. INFO.: US 1999-118615P P 19990204

WO 2000-US3043 W 20000204

AB Osteogenic sponge compns. having enhanced osteoinductive properties for use in bone repair are described. The compns. include a quickly resorbable **porous** carrier, a more slowly resorbed mineral **scaffold** and an osteogenic factor, preferably a bone morphogenetic protein. The compns. enable increased osteoinductive activity while retaining a reliable **scaffold** for the formation of new bone at an implant site. Methods for therapeutic use of the compns. are also described.

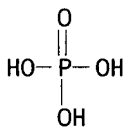
IT **10103-46-5**, Calcium phosphate

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(biocompatible ceramics; highly-mineralized osteogenic sponge compns. for repair of bone)

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Osteogenic sponge compns. having enhanced osteoinductive properties for use in bone repair are described. The compns. include a quickly resorbable **porous** carrier, a more slowly resorbed mineral **scaffold** and an osteogenic factor, preferably a bone morphogenetic protein. The compns. enable increased osteoinductive activity while retaining a reliable **scaffold** for the formation of new bone at an implant site. Methods for therapeutic use of the compns. are also described.

IT **Ceramics**

(biocompatible; highly-mineralized osteogenic sponge compns. for repair of bone)

IT Bone morphogenetic proteins

Collagens, biological studies

Platelet-derived growth factors

Steroids, biological studies

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(highly-mineralized osteogenic sponge compns. for repair of bone)

IT **Porosity**

(microporosity; highly-mineralized osteogenic sponge compns. for repair of bone)

IT **10103-46-5**, Calcium phosphate
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biocompatible ceramics; highly-mineralized osteogenic sponge compns. for repair of bone)

L76 ANSWER 31 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:530914 HCAPLUS
DOCUMENT NUMBER: 133:242541
TITLE: New bioactive, degradable composite microspheres as tissue engineering substrates
AUTHOR(S): Qiu, Qing-Qing; Ducheyne, Paul; Ayyaswamy, Portonovo S.
CORPORATE SOURCE: Department of Bioengineering, Center for Bioactive Materials and Tissue Engineering, University of Pennsylvania, Philadelphia, PA, 19104, USA
SOURCE: Journal of Biomedical Materials Research (2000), 52(1), 66-76
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Novel bioactive, degradable polymer/glass/ceramic composite microspheres were developed using a solid-in-oil-in-water (s/o/w) emulsion solvent removal method. Modified bioactive glass (MBG) powders were encapsulated into the polylactic acid (PLA) matrix. SEM and energy-dispersive X-ray analyses revealed that the MBG powders were mostly embedded in the polymer matrix, and submicron-size **pores** were present at the surface. Immersion in simulated physiol. fluid (SPF) was used to evaluate the surface reactivity of the microspheres. The polymeric surface was fully transformed into carbonated calcium hydroxyapatite (c-HA) after 3 wk of immersion. In contrast, PLA microspheres showed no evidence of any calcium phosphate deposition. Ion concn. analyses revealed a decrease in Ca and P concns. and an increase in Si concn. in the SPF immersed with composite microspheres during the 3-wk period. The Ca and P uptake rates decreased after 2 days of incubation. This coincided with the decrease of the Si release rate. These data lend **support** to the suggestion that the Si released from the MBG powders present in the polymer matrix is involved in the formation of the Ca-P **layer**. Our results **support** the concept that these new bioactive, degradable composite microspheres may serve as microcarriers for synthesis of bone and other tissues in vitro and in vivo.

IT **1305-78-8**, Calcium oxide, biological studies **1306-06-5**, Calcium hydroxyapatite **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Polylactic acid
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(new bioactive, degradable composite microspheres as tissue engineering substrates)

RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

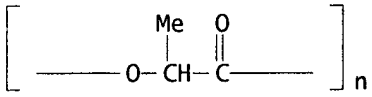
Ca=O

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

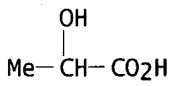
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 50-21-5
CMF C3 H6 O3



REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

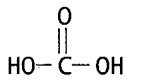
CC **63-7** (Pharmaceuticals)

AB Novel bioactive, degradable polymer/glass/ceramic composite microspheres were developed using a solid-in-oil-in-water (s/o/w) emulsion solvent removal method. Modified bioactive glass (MBG) powders were encapsulated into the polylactic acid (PLA) matrix. SEM and energy-dispersive X-ray analyses revealed that the MBG powders were mostly embedded in the polymer matrix, and submicron-size **pores** were present at the surface. Immersion in simulated physiol. fluid (SPF) was used to evaluate the surface reactivity of the microspheres. The polymeric surface was fully transformed into carbonated calcium hydroxyapatite (c-HA) after 3 wk of immersion. In contrast, PLA microspheres showed no evidence of any calcium phosphate deposition. Ion concn. analyses revealed a decrease in Ca and P concns. and an increase in Si concn. in the SPF immersed with composite microspheres during the 3-wk period. The Ca and P uptake rates decreased after 2 days of incubation. This coincided with the decrease of the Si release rate. These data lend **support** to the suggestion that the Si released from the MBG powders present in the polymer matrix is involved in the formation of the Ca-P **layer**. Our results **support** the concept that these new bioactive, degradable composite microspheres may serve as microcarriers for synthesis of bone and other tissues in vitro and in vivo.

IT **1305-78-8**, Calcium oxide, biological studies **1306-06-5**, Calcium hydroxyapatite 1313-59-3, Sodium oxide, biological studies 1314-56-3, Phosphorus oxide, biological studies **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Polylactic acid

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(new bioactive, degradable composite microspheres as tissue engineering substrates)

L76 ANSWER 32 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:528449 HCAPLUS
DOCUMENT NUMBER: 134:101462
TITLE: Analysis of fiber wetting in SMC formation
AUTHOR(S): Li, Shoujie; Lee, L. James; Rinz, James E.
CORPORATE SOURCE: Department of Chemical Engineering, The Ohio State University, Columbus, OH, 43210, USA
SOURCE: Marketing/Technical Sessions of the Composites Institute's International Composites Expo '99, Cincinnati, OH, United States, May 10-12, 1999 (1999), 1D/1-1D/6. SPI Composites Institute: Harrison, N. Y. CODEN: 69AFIQ
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Defects such as surface **porosity** and blisters in SMC [sheet molding compd.] can be minimized using vacuum bag molding and in-mold coating, and by optimizing molding conditions, however, fiber pretreatment issues require study. The wettability of fiber bundles and the effect of paste viscosity on the fiber wetting rate were studied. Low viscosity fluids were used as model liqs., i.e., propylene glycol, ethylene glycol, glycerin, and distd. water; five types of glass fiber bundles of different filament diam. were tested. A paste of unsatd. polyester resin contg. CaCO3 and MgO as thickeners was also used in tests to det. the effect of paste viscosity on fiber wetting rate. Spring-back of fiber bundle stacks at the end of the sheet formation line and how it affects the void content in the SMC were also studied.
IT **471-34-1**, Calcium carbonate (CaCO3), uses
RL: MOA (Modifier or additive use); USES (Uses)
(thickener; factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)
RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Defects such as surface **porosity** and blisters in SMC [sheet molding compd.] can be minimized using vacuum bag molding and in-mold coating, and by optimizing molding conditions, however, fiber pretreatment issues require study. The wettability of fiber bundles and the effect of paste viscosity on the fiber wetting rate were studied. Low viscosity fluids were used as model liqs., i.e., propylene glycol, ethylene glycol, glycerin, and distd. water; five types of glass fiber bundles of different filament diam. were tested. A paste of unsatd. polyester resin contg. CaCO3 and MgO as thickeners was also used in tests to det. the effect of paste viscosity on fiber wetting rate. Spring-back of fiber bundle stacks

at the end of the sheet formation line and how it affects the void content in the SMC were also studied.

IT **Molding f plastics and rubbers**
Porosity
Surface roughness
Thickening agents
Wettability
(factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)

IT **Polyesters, processes**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(unsatd.; factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)

IT **471-34-1**, Calcium carbonate (CaCO3), uses 1309-48-4, Magnesium oxide (MgO), uses
RL: MOA (Modifier or additive use); USES (Uses)
(thickener; factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)

L76 ANSWER 33 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:401979 HCAPLUS
DOCUMENT NUMBER: 133:40220
TITLE: Microcellular polymers as cell growth media and novel polymers
INVENTOR(S): Akay, Galip; Downes, Sandra; Price, Victoria Jane
PATENT ASSIGNEE(S): The University of Newcastle, UK
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000034454	A2	20000615	WO 1999-GB4076	19991206
WO 2000034454	A3	20001109		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1183328	A2	20020306	EP 1999-958382	19991206
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

PRIORITY APPLN. INFO.: GB 1998-26701 A 19981205
WO 1999-GB4076 W 19991206

AB Disclosed is a microcellular polyHIPE polymer **scaffold** suitable for growth of living matter for biomedical applications, obtainable by polymg. a high internal phase emulsion, comprising a homogeneous cross-linked open cellular material defined by a bulk polymer matrix having a surface and an interface with an internal phase, and having **porosity** greater than 75 % comprising emulsion derived **pores** of diam. in the range of 0.1 to 10,000 .mu. and emulsion derived **pore** interconnects of diam. in the range of up to 100 .mu., wherein the **scaffold** comprises a plurality of discrete

and/or interpenetrating zones: at the polymer surface; within its bulk matrix; at the interface between polymer and internal phase; and/or between adjacent but distinct **pores** and/or interconnects, characterized by form and dimension of **pore** and interconnect type within each zone, and location of zones wherein adjacent or interpenetrating zones are distinguished by boundaries which may be between or contained within adjacent **pores** and/or interconnects in resp. zones, whereby zones are suitable for regulating positioning and/or morphol. of living matter. Also disclosed are a biol. active system comprising the **scaffold**, an organ support module comprising the **scaffold** and methods and processes for prepn. thereof and use thereof. Bovine chondrocytes were grown in polyHIPE disks.

IT **1306-06-5**, Hydroxyapatite
RL: BUU (Biological use, unclassified); DEV (Device component use); MOA (Modifier or additive use); BIOL (Biological study); USES (Uses)
(surface coating with; microcellular polymers as cell growth media and novel polymers)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

AB Disclosed is a microcellular polyHIPE polymer **scaffold** suitable for growth of living matter for biomedical applications, obtainable by polymg. a high internal phase emulsion, comprising a homogeneous cross-linked open cellular material defined by a bulk polymer matrix having a surface and an interface with an internal phase, and having **porosity** greater than 75 % comprising emulsion derived **pores** of diam. in the range of 0.1 to 10,000 .mu. and emulsion derived **pore** interconnects of diam. in the range of up to 100 .mu., wherein the **scaffold** comprises a plurality of discrete and/or interpenetrating zones: at the polymer surface; within its bulk matrix; at the interface between polymer and internal phase; and/or between adjacent but distinct **pores** and/or interconnects, characterized by form and dimension of **pore** and interconnect type within each zone, and location of zones wherein adjacent or interpenetrating zones are distinguished by boundaries which may be between or contained within adjacent **pores** and/or interconnects in resp. zones, whereby zones are suitable for regulating positioning and/or morphol. of living matter. Also disclosed are a biol. active system comprising the **scaffold**, an organ support module comprising the **scaffold** and methods and processes for prepn. thereof and use thereof. Bovine chondrocytes were grown in polyHIPE disks.

ST microcellular polymer cell growth media; polyHIPE polymer **scaffold** cell growth; artificial organ polyHIPE polymer **scaffold**; chondrocyte growth polyHIPE polymer

IT Animal cell
Animal tissue culture
Bacteria (Eubacteria)
Capillary tubes
Cell
Cell fusion
Cell proliferation

Chondrocyte
Contact lenses
Culture media
Electric conductivity
Fibroblast
Macrophage
Microorganism
Myoblast
Osteoblast
Plant cell
Polymerization
Pore
Virus
(microcellular polymers as cell growth media and novel polymers)

IT **Collagens**, preparation
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(type II, prodn. of, by chondrocytes grown on polyHIPE polymers; microcellular polymers as cell growth media and novel polymers)

IT **1306-06-5**, Hydroxyapatite
RL: BUU (Biological use, unclassified); DEV (Device component use); MOA (Modifier or additive use); BIOL (Biological study); USES (Uses)
(surface coating with; microcellular polymers as cell growth media and novel polymers)

L76 ANSWER 34 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:301680 HCAPLUS
DOCUMENT NUMBER: 133:313451
TITLE: Rabbit articular cartilage defects treated with homologous cultured chondrocyte on the **porous** hydroxyapatite coated with polylactic acid
AUTHOR(S): Zhang, Chi; Chen, Zhengrong; Lin, Jianping; Zhang, Guangjian
CORPORATE SOURCE: Department of Orthopaedics, Zhongshan Hospital, Shanghai Medical University, Shanghai, 200032, Peop. Rep. China
SOURCE: Shanghai Yike Daxue Xuebao (2000), 27(2), 83-86
CODEN: SYDXEE; ISSN: 0257-8131
PUBLISHER: Shanghai Yike Daxue Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Chondrocyte were cultured on the **porous** hydroxyapatite coated with polylactic acid to study the repairing of rabbit articular cartilage defects by complex materials engineered chondrocyte. Chondrocyte were planted on the surface of the **porous** hydroxyapatite (HA) coated with polylactic acid (PLA). After 2 wk of culture, the complex of chondrocyte-**scaffold** were transplanted to repair the articular cartilage defect of femoral condyle of rabbit knees. The defects had been made previously and were 5 mm in diam., 2.5 mm in depth, extending down to the calcified zone. Healing of the defects was assessed by gross examn., light microscope and electron microscope. In addn., the collagen content of the normal cartilage of rabbit knees and the healing cartilage after 12 wk of transplantation were detd. **Porous** hydroxyapatite coated with PLA was a kind of excellent **scaffold**, the transplanted chondrocyte could grow well on the **scaffold** and form hyaline cartilage. In the no chondrocyte-transplantation groups, the effects were repaired only by fiber tissues. Meanwhile, the **porous** HA was the temporary substitute of subchondral bone in the period of repairing. The collagen content of healing cartilage after 12 wk of transplantation was 44.69%, and the content of normal cartilage was 54.74%, the difference

was statistically significant. **Porous** hydroxyapatite coated with PLA engineered chondrocyte can repair successfully the cartilage defect of femoral condyle of rabbit knees in the mode of hyaline cartilage. Immaturity of chondrocyte result in that the difference of collagen content is statistically significant.

IT **1306-06-5**, Hydroxyapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

TI Rabbit articular cartilage defects treated with homologous cultured chondrocyte on the **porous** hydroxyapatite coated with polylactic acid

AB Chondrocyte were cultured on the **porous** hydroxyapatite coated with polylactic acid to study the repairing of rabbit articular cartilage defects by complex materials engineered chondrocyte. Chondrocyte were planted on the surface of the **porous** hydroxyapatite (HA) coated with polylactic acid (PLA). After 2 wk of culture, the complex of chondrocyte-**scaffold** were transplanted to repair the articular cartilage defect of femoral condyle of rabbit knees. The defects had been made previously and were 5 mm in diam., 2.5 mm in depth, extending down to the calcified zone. Healing of the defects was assessed by gross examn., light microscope and electron microscope. In addn., the collagen content of the normal cartilage of rabbit knees and the healing cartilage after 12 wk of transplantation were detd. **Porous** hydroxyapatite coated with PLA was a kind of excellent **scaffold**, the transplanted chondrocyte could grow well on the **scaffold** and form hyaline cartilage. In the no chondrocyte-transplantation groups, the effects were repaired only by fiber tissues. Meanwhile, the **porous** HA was the temporary substitute of subchondral bone in the period of repairing. The collagen content of healing cartilage after 12 wk of transplantation was 44.69%, and the content of normal cartilage was 54.74%, the difference was statistically significant. **Porous** hydroxyapatite coated with PLA engineered chondrocyte can repair successfully the cartilage defect of femoral condyle of rabbit knees in the mode of hyaline cartilage. Immaturity of chondrocyte result in that the difference of collagen content is statistically significant.

ST articular cartilage defect; homologous cultured chondrocyte **porous** hydroxyapatite coated polylactate

IT Cartilage
(articular, defects; rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

IT Joint, anatomical
(knee; rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

IT Animal tissue culture
Chondrocyte
Rabbit

Transplant and Transplantation
Wound healing
(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

IT **Collagens**, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

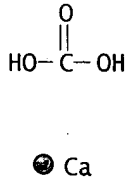
IT **1306-06-5**, Hydroxyapatite 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

L76 ANSWER 35 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:83836 HCAPLUS
DOCUMENT NUMBER: 132:255869
TITLE: Novel Fabrication of Open-Pore **Chitin** Matrixes
AUTHOR(S): Chow, Kok Sum; Khor, Eugene
CORPORATE SOURCE: Department of Chemistry, National University of Singapore, Singapore, 117543, Singapore
SOURCE: Biomacromolecules (2000), 1(1), 61-67
CODEN: BOMAF6; ISSN: 1525-7797
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel method has been developed to produce open-pore chitin matrixes. Chitin solns. were loaded with calcium carbonate (CaCO3) crystals and the mixt. cast to form gels. The CaCO3-chitin gels were submerged in 1 N HCl soln. to produce highly porous matrixes with good water vapor permeability, water uptake profile, and enhanced mech. properties. The open-pore system is obtainable because CaCO3 loaded into the chitin gel reacts with 1 N HCl soln. to produce gaseous carbon dioxide. Evolution of carbon dioxide during the reaction results in continuous pore structures from the matrix' bulk to surface. When the concn. of CaCO3 loaded into the chitin gel is controlled, defined homogeneous pores measuring 100-500 and 500-1000 .mu.m, with porosities of .apprxeq.76% and 81%, resp., can be produced.

IT **471-34-1**, Calcium carbonate, biological studies
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(fabrication of open-pore **chitin** matrixes)

RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



IT **1398-61-4, Chitin**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(fabrication of open-pore **chitin** matrixes)
RN 1398-61-4 HCAPLUS
CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI Novel Fabrication of Open-Pore **Chitin** Matrixes
ST **chitin** matrix open pore
IT **Pore size**
(fabrication of open-pore **chitin** matrixes)
IT 124-38-9, Carbon dioxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(fabrication of open-pore **chitin** matrixes)
IT **471-34-1**, Calcium carbonate, biological studies
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(fabrication of open-pore **chitin** matrixes)
IT **1398-61-4, Chitin**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(fabrication of open-pore **chitin** matrixes)

L76 ANSWER 36 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:510499 HCAPLUS
DOCUMENT NUMBER: 131:174892
TITLE: Functionally graded bioceramics
AUTHOR(S): Pompe, W.; Lampenscherf, S.; Rossler, S.; Scharnweber, D.; Weis, K.; Worch, H.; Hofinger, J.
CORPORATE SOURCE: Department Materials Science, Dresden Univ. Technology, Dresden, D-01069, Germany
SOURCE: Materials Science Forum (1999), 308-311(Functionally Graded Materials 1998), 325-330
CODEN: MSFOEP; ISSN: 0255-5476
PUBLISHER: Trans Tech Publications Ltd.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review is given with 8 refs. on graded hydroxyapatite (HAP)/collagen I composites with osteoconductive properties as coatings for Ti implants or as bone replacements. Functionally graded multiphase Ca phosphate coatings can be applied for biocompatible coatings of metallic implants. Electrochem. assisted TiO2-HAP-amorphous Ca phosphate coatings have high interface strength, bone-like compliance, and biocompatibility. The integration of collagen I in electrochem. assisted TiO2-HAP coatings resulted in osteoconductive behavior. Osteoconductive bone replacements can be manufd. from liq. HAP-collagen precursors with different routes for graded micro- and macroporous structures.
IT **1306-06-5**, Hydroxyapatite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(hydroxyapatite/**collagen** I composite; functionally graded bioceramics)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ST review bioceramic hydroxyapatite titanium **collagen**; calcium phosphate titanium hydroxyapatite bioceramic review

IT **Ceramics**
(biocompatible; functionally graded bioceramics)

IT Coating materials
Pore size distribution
(functionally graded bioceramics)

IT **Collagens**, biological studies
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(type I, hydroxyapatite/**collagen** I composite; functionally graded bioceramics)

IT **1306-06-5**, Hydroxyapatite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(hydroxyapatite/**collagen** I composite; functionally graded bioceramics)

L76 ANSWER 37 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:392597 HCAPLUS
DOCUMENT NUMBER: 131:49508
TITLE: Formation of human bone in vivo using ceramic powder and human marrow stromal fibroblasts
INVENTOR(S): Robey, Pamela Gehron; Bianco, Paolo; Kuznetsov, Sergei; Rowe, David; Krebsbach, Paul; Mankani, Mahesh H.
PATENT ASSIGNEE(S): United States Dept. of Health and Human Services, USA
SOURCE: U.S., 10 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5914121	A	19990622	US 1997-798715	19970212

PRIORITY APPLN. INFO.: US 1997-798715 19970212

AB An compn. suitable for implantation for stimulating human bone formation is described. Human marrow stromal fibroblasts (MSFs) are isolated, expanded in culture, combined with ceramic powder (hydroxyapatite (HA)/tricalcium phosphate (TCP)) delivery vehicles with or without fibrin glue and implanted into a mammal. This protocol results in the formation of self-maintained human bone which **supports** hematopoiesis. This model system can be used to screen compds. which inhibit or stimulate bone formation. The MSF delivery vehicles can be implanted into humans to augment bone implants or to repair bone defects. Two weeks after transplantation of mouse MSFs in HA/TCP blocks, newly formed bone was obsd. in vehicle **pores** at the periphery of the transplants; most of the internal **pores** contained fibrous tissue and vascular structure. After 4-5 wk, many **pores** were filled and new bone showed osteocytes and osteoblastic **layer**. After 6-10 wk,

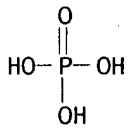
transplants showed areas of vehicle resorption and bone remodeling. Larger **pores** were **layered** with lamellar-like bone surrounding reticular and fat stroma with abundant hematopoietic tissue.

IT **1306-06-5**, Hydroxyapatite **7758-87-4**, Tricalcium phosphate **26161-42-2 26811-96-1**, Poly(L-lactic acid)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

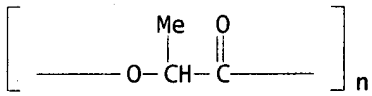
Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 26161-42-2 HCAPLUS
CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)

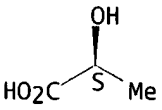


RN 26811-96-1 HCAPLUS
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4
CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC **63-7** (Pharmaceuticals)
Section cross-reference(s): 1

AB An compn. suitable for implantation for stimulating human bone formation is described. Human marrow stromal fibroblasts (MSFs) are isolated, expanded in culture, combined with ceramic powder (hydroxyapatite (HA)/tricalcium phosphate (TCP)) delivery vehicles with or without fibrin glue and implanted into a mammal. This protocol results in the formation of self-maintained human bone which **supports** hematopoiesis. This model system can be used to screen compds. which inhibit or stimulate bone formation. The MSF delivery vehicles can be implanted into humans to augment bone implants or to repair bone defects. Two weeks after transplantation of mouse MSFs in HA/TCP blocks, newly formed bone was obsd. in vehicle **pores** at the periphery of the transplants; most of the internal **pores** contained fibrous tissue and vascular structure. After 4-5 wk, many **pores** were filled and new bone showed osteocytes and osteoblastic **layer**. After 6-10 wk, transplants showed areas of vehicle resorption and bone remodeling. Larger **pores** were **layered** with lamellar-like bone surrounding reticular and fat stroma with abundant hematopoietic tissue.

IT **Collagens**, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

IT Hematopoiesis
(implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation which **supports** hematopoiesis)

IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

IT Vinyl compounds, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymers, **sponges**; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

IT **Ceramics**
(prosthetic implants; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

IT **Collagens**, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type I, fibrillar; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

IT **Collagen** fibers
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type I; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

IT **1306-06-5**, Hydroxyapatite **7758-87-4**, Tricalcium phosphate **26161-42-2 26811-96-1**, Poly(L-lactic acid)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

L76 ANSWER 38 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:364526 HCAPLUS
DOCUMENT NUMBER: 131:120822

TITLE: Novel three dimensional biodegradable **scaffolds** for bone tissue engineering
AUTHOR(S): Marra, Kacey G.; Campbell, Phil G.; Dimilla, Paul A.; Kumta, Prashant N.; Mooney, Mark P.; Szem, Jeffrey W.; Weiss, Lee E.
CORPORATE SOURCE: Institute for Complex Engineered Systems, Carnegie Mellon University (CMU), Pittsburgh, PA, USA
SOURCE: Materials Research Society Symposium Proceedings (1999), 550(Biomedical Materials--Drug Delivery, Implants and Tissue Engineering), 155-160
CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English

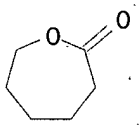
AB We constructed osteogenic **scaffolds** using solid free form fabrication techniques. Blends of biodegradable polymers, polycaprolactone and poly(DL-lactic-co-glycolic acid), were examd. as **scaffolds** for applications in bone tissue engineering. Hydroxyapatite granules were incorporated into the blends and **porous** disks were prepd. Mech. properties and degrdn. rates of the composites were detd. The disks were seeded with rabbit bone marrow or cultured bone marrow stromal cells and in vitro studies were conducted. Electron microscopy and histol. anal. revealed an osteogenic composite that **supports** bone cell growth not only on the surface but throughout the 1-mm thick **scaffold** as well. Seeded and unseeded disks were mech. assembled in **layers** and implanted in a rabbit rectus abdominis muscle. Bone growth was evident after eight weeks in vivo. Electron microscopy and histol. analyses indicate vascularization and primitive bone formation throughout the seeded composite, and also a "fusion" of the **layers** to form a single, solid construct. Finally, we have begun to incorporate the growth factor IGF-I into the **scaffold** to enhance osteogenicity and/or as an alternative to cell seeding.

IT **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(3-dimensional biodegradable polymers for bone tissue engineering)

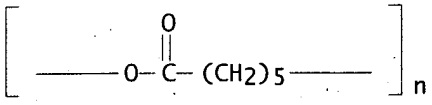
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 502-44-3
CMF C6 H10 O2



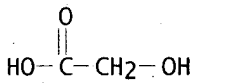
RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

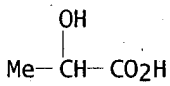
CM 1

CRN 79-14-1
CMF C2 H4 O3



CM 2

CRN 50-21-5
CMF C3 H6 O3



IT **1306-06-5**, Hydroxylapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(3-dimensional biodegradable polymers for bone tissue engineering)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Novel three dimensional biodegradable **scaffolds** for bone tissue engineering
CC **63-7** (Pharmaceuticals)
AB We constructed osteogenic **scaffolds** using solid free form fabrication techniques. Blends of biodegradable polymers, polycaprolactone and poly(DL-lactic-co-glycolic acid), were examd. as **scaffolds** for applications in bone tissue engineering. Hydroxyapatite granules were incorporated into the blends and **porous** disks were prepd. Mech. properties and degrdn. rates of the composites were detd. The disks were seeded with rabbit bone marrow or cultured bone marrow stromal cells and in vitro studies were conducted.

Electron microscopy and histol. anal. revealed an osteogenic composite that **supports** bone cell growth not only on the surface but throughout the 1-mm thick **scaffold** as well. Seeded and unseeded disks were mech. assembled in **layers** and implanted in a rabbit rectus abdominis muscle. Bone growth was evident after eight weeks in vivo. Electron microscopy and histol. analyses indicate vascularization and primitive bone formation throughout the seeded composite, and also a "fusion" of the **layers** to form a single, solid construct. Finally, we have begun to incorporate the growth factor IGF-I into the **scaffold** to enhance osteogenicity and/or as an alternative to cell seeding.

IT **Polyesters, biological studies**
RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-based; 3-dimensional biodegradable polymers for bone tissue engineering)

IT **Polyesters, biological studies**
RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydroxycarboxylic acid-based; 3-dimensional biodegradable polymers for bone tissue engineering)

IT **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(3-dimensional biodegradable polymers for bone tissue engineering)

IT **1306-06-5**, Hydroxylapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(3-dimensional biodegradable polymers for bone tissue engineering)

L76 ANSWER 39 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:184163 HCAPLUS
DOCUMENT NUMBER: 130:227736
TITLE: Biodegradable composites for implants
INVENTOR(S): Corden, Thomas Joseph; Downes, Sandra; Fisher, Sheila Eunice; Jones, Ivor Arthur; Rudd, Christopher Douglas
PATENT ASSIGNEE(S): University of Nottingham, UK
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

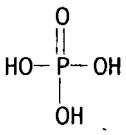
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9911297	A2	19990311	WO 1998-GB2399	19980819
WO 9911297	A3	19990610		
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2300949	AA	19990311	CA 1998-2300949	19980819
AU 9887382	A1	19990322	AU 1998-87382	19980819
EP 1005379	A1	20000607	EP 1998-938777	19980819
R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, PT, FI				

JP 2001514049 T2 20010911 JP 2000-508398 19980819
PRIORITY APPLN. INFO.: GB 1997-17433 A 19970819
WO 1998-GB2399 W 19980819

AB Disclosed is a fully biodegradable fiber-reinforced composite adapted for use as a medical implant which is shaped and processed by means of a resin reaction injection transfer molding process adapted for predetermining shape, phys. properties and degrdn. profile. Also disclosed are a shaped preform and/or compn. for prepn. of the shaped composite, a process for the prodn. of the shaped composite comprising obtaining a shaped preform and impregnating with resin with simultaneous processing thereof, and a shaped composite comprising thermoplastic matrix and fibers adapted for use as a medical implant. It is characterized by a differential degrdn. of matrix with respect to fibers adapted to degrade via an intermediate shaped structure comprising residual **porous** matrix or residual fiber form resp. and selection of composite is made for primary growth of a preferred cell type, throughout voids created by degraded matrix or fiber resp., according to the desired healing or reconstruction locus, the shaped composites for use as an implant in surgical reconstruction, preferably for use in reconstructive surgery of bone or in reconstructive surgery of cartilage and/or meniscus selected from cranial, maxillofacial and orthopedic surgery for the purpose of fixation, augmentation and filling in of defects. A method for the prodn. of a shaped product comprises prepn. of set sizes, shapes and configurations, e.g. plates, screws, rivets and other fixation devices according to a 3-dimensional template wherein the template is obtained by means of prepg. 3-dimensional image of a selected feature or area for implant, generating a mold as hereinbefore defined, selecting fiber and matrix for prepn. of a composite, prepg. a fiber preform by introducing fiber into the mold in an effective amt. and arrangement, injecting matrix and catalyst and processing thereof with subsequent removal of the mold.

IT **7758-87-4**, .beta.-Tricalcium phosphate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fibers; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



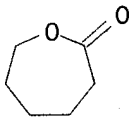
●3/2 Ca

IT **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26063-00-3**, Polyhydroxybutyrate **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26161-42-2** **26680-10-4**, Polylactide **26744-04-7** **26780-50-7**, Lactide-glycolide copolymer **26811-96-1**, Poly(L-lactic acid) **30846-39-0**, L-Lactide-glycolide copolymer **33135-50-1**, Poly(L-lactide)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

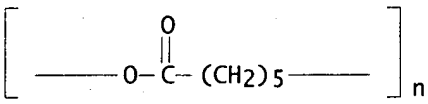
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

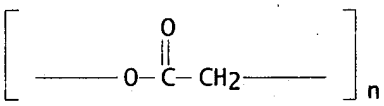
CRN 502-44-3
CMF C6 H10 O2



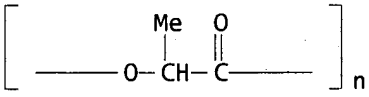
RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



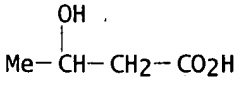
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26063-00-3 HCAPLUS
CN Butanoic acid, 3-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

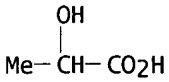
CRN 300-85-6
CMF C4 H8 O3



RN 26100-51-6 HCAPLUS
CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

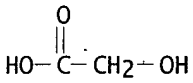
CRN 50-21-5
CMF C3 H6 O3



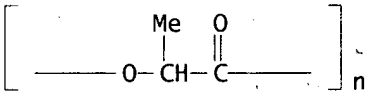
RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1
CMF C2 H4 O3



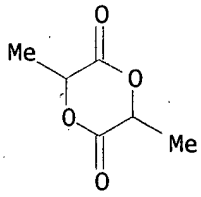
RN 26161-42-2 HCAPLUS
CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



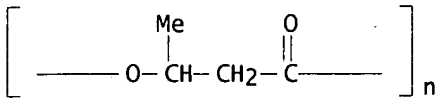
RN 26680-10-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5
CMF C6 H8 O4



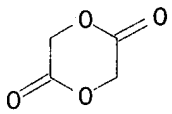
RN 26744-04-7 HCAPLUS
CN Poly[oxy(1-methyl-3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)



RN 26780-50-7 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

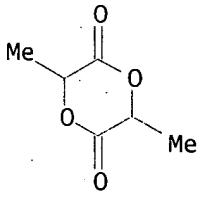
CM 1

CRN 502-97-6
CMF C4 H4 O4



CM 2

CRN 95-96-5
CMF C6 H8 O4

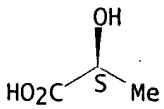


RN 26811-96-1 HCAPLUS
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4
CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).

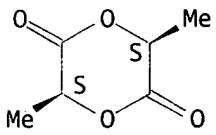


RN 30846-39-0 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

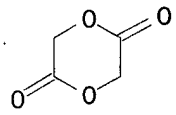
CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-97-6
CMF C4 H4 O4

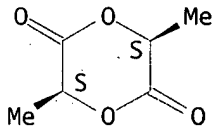


RN 33135-50-1 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



AB Disclosed is a fully biodegradable fiber-reinforced composite adapted for use as a medical implant which is shaped and processed by means of a resin reaction injection transfer molding process adapted for predetermining shape, phys. properties and degrdn. profile. Also disclosed are a shaped preform and/or compn. for prepn. of the shaped composite, a process for the prodn. of the shaped composite comprising obtaining a shaped preform and impregnating with resin with simultaneous processing thereof, and a shaped composite comprising thermoplastic matrix and fibers adapted for use as a medical implant. It is characterized by a differential degrdn. of matrix with respect to fibers adapted to degrade via an intermediate shaped structure comprising residual **porous** matrix or residual fiber form resp. and selection of composite is made for primary growth of a preferred cell type, throughout voids created by degraded matrix or fiber resp., according to the desired healing or reconstruction locus, the shaped composites for use as an implant in surgical reconstruction, preferably for use in reconstructive surgery of bone or in reconstructive

surgery of cartilage and/or meniscus selected from cranial, maxillofacial and orthopedic surgery for the purpose of fixation, augmentation and filling in of defects. A method for the prodn. of a shaped product comprises prepn. of set sizes, shapes and configurations, e.g. plates, screws, rivets and other fixation devices according to a 3-dimensional template wherein the template is obtained by means of prepg. 3-dimensional image of a selected feature or area for implant, generating a mold as hereinbefore defined, selecting fiber and matrix for prepn. of a composite, prepg. a fiber preform by introducing fiber into the mold in an effective amt. and arrangement, injecting matrix and catalyst and processing thereof with subsequent removal of the mold.

IT Fluoropolymers, biological studies
Polyamides, biological studies
Polyanhydrides
Polycarbonates, biological studies
Polyesters, biological studies
Polyolefins
Polysiloxanes, biological studies
Polyurethanes, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT **Polyesters, biological studies**
Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyamide-, matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT **Molding of plastics and rubbers**
(transfer; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT **7758-87-4**, .beta.-Tricalcium phosphate 15551-60-7 53801-86-8, Calcium metaphosphate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fibers; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT 9002-84-0, Teflon **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26063-00-3**, Polyhydroxybutyrate **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26161-42-2** **26680-10-4**, Polylactide **26744-04-7** **26780-50-7**, Lactide-glycolide copolymer **26811-96-1**, Poly(L-lactic acid) 27083-66-5, Polypropylene fumarate **30846-39-0**, L-Lactide-glycolide copolymer 31852-84-3, Polytrimethylenecarbonate **33135-50-1**, Poly(L-lactide) 50862-75-4, Poly(oxycarbonyloxy-1,3-propanediyl) 83120-66-5
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

L76 ANSWER 40 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:57665 HCAPLUS
DOCUMENT NUMBER: 130:227697
TITLE: Poly(.alpha.-hydroxy acids)/hydroxyapatite **porous** composites for bone-tissue engineering. I. Preparation and morphology
AUTHOR(S): Zhang, Ruiyun; Ma, Peter X.
CORPORATE SOURCE: Department of Biologic and Materials Sciences, The University of Michigan, Ann Arbor, MI, 48109-1078, USA

SOURCE: Journal of Biomedical Materials Research (1999), 44(4), 446-455
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

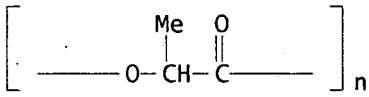
AB Tissue engineering has shown great promise for creating biol. alternatives for implants. In this approach, **scaffolding** plays a pivotal role. Hydroxyapatite mimics the natural bone mineral and has shown good bone-bonding properties. This paper describes the prepn. and morphologies of 3-dimensional **porous** composites from poly(L-lactic acid) (PLLA) or poly(D,L-lactic acid-coglycolic acid) (PLGA) soln. and hydroxyapatite (HAP). A thermally induced **phase** sepn. technique was used to create the highly **porous** composite **scaffolds** for bone-tissue engineering. Freeze drying of the **phase**-sepd. polymer/HAP/solvent mixts. produced hard and tough foams with a co-continuous structure of interconnected **pores** and a polymer/HAP composite skeleton. The microstructure of the **pores** and the walls was controlled by varying the polymer concn., HAP content, quenching temp., polymer, and solvent utilized. The **porosity** increased with decreasing polymer concn. and HAP content. Foams with **porosity** as high as 95% were achieved. **Pore** sizes ranging from several microns to a few hundred microns were obtained. The composite foams showed a significant improvement in mech. properties over pure polymer foams. They are promising **scaffolds** for bone-tissue engineering.

IT **1306-06-5**, Hydroxyapatite **26161-42-2 26811-96-1**, Poly(L-lactic acid) **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 26161-42-2 HCAPLUS
CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)

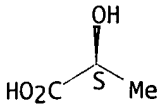


RN 26811-96-1 HCAPLUS
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4
CMF C3 H6 O3

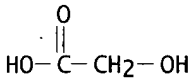
Absolute stereochemistry. Rotation (+).



RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

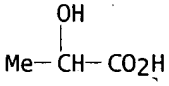
CM 1

CRN 79-14-1
CMF C2 H4 O3



CM 2

CRN 50-21-5
CMF C3 H6 O3



REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Poly(.alpha.-hydroxy acids)/hydroxyapatite **porous** composites for bone-tissue engineering. I. Preparation and morphology

CC **63-7** (Pharmaceuticals)

AB Tissue engineering has shown great promise for creating biol. alternatives for implants. In this approach, **scaffolding** plays a pivotal role. Hydroxyapatite mimics the natural bone mineral and has shown good bone-bonding properties. This paper describes the prepn. and morphologies of 3-dimensional **porous** composites from poly(L-lactic acid) (PLLA) or poly(D,L-lactic acid-coglycolic acid) (PLGA) soln. and hydroxyapatite (HAP). A thermally induced **phase** sepn. technique was used to create the highly **porous** composite **scaffolds** for bone-tissue engineering. Freeze drying of the **phase**-sepd. polymer/HAP/solvent mixts. produced hard and tough foams with a co-continuous structure of interconnected **pores** and a polymer/HAP composite skeleton. The microstructure of the **pores** and the walls was controlled by varying the polymer concn., HAP content, quenching temp., polymer, and solvent utilized. The **porosity** increased with decreasing polymer concn. and HAP content. Foams with **porosity** as high as 95% were achieved. **Pore** sizes ranging from several microns to a few hundred microns were obtained. The composite foams showed a significant improvement in mech. properties over pure polymer foams. They are promising **scaffolds** for bone-tissue engineering.

IT **Polyesters, biological studies**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydroxycarboxylic acid-based; prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

IT Bone
Compression
Density
Microstructure
Polymer morphology
Pore size distribution
Porosity
Yield strength
(prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

IT **1306-06-5**, Hydroxyapatite **26161-42-2 26811-96-1**
, Poly(L-lactic acid) **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

L76 ANSWER 41 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:57647 HCAPLUS
DOCUMENT NUMBER: 130:227692
TITLE: Three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture
AUTHOR(S): Du, C.; Cui, F. Z.; Zhu, X. D.; De Groot, K.
CORPORATE SOURCE: Department of Materials Science and Engineering, Tsinghua University, Beijing, 100084, Peop. Rep. China
SOURCE: Journal of Biomedical Materials Research (1999), 44(4), 407-415
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Transplantation of osteogenic cells with a suitable matrix is one strategy for engineering bone tissue. Three-dimensional distribution and growth of cells within the **porous scaffold** are of clin.
significance for the repair of large bony defects. A nano-HAp/collagen (nHAC) composite that mimics the natural bone both in compn. and microstructure to some extent was employed as a matrix for the tissue engineering of bone. A **porous** nHAC composite was produced in sheet form and convolved to be a 3-dimensional **scaffold**. Using organ culture techniques and the convolving method, we have developed three-dimensional osteogenic cells/nHAC constructs in vitro. SEM and histol. examn. has demonstrated the development of the cells/material complex. Spindle-shaped cells migrating out of bone fragments continuously proliferated and migrated throughout the network of the coil. The **porous** nHAC **scaffold** provided a microenvironment resembling that seen in vivo, and cells within the composite eventually acquired a tridimensional polygonal shape. In addn., new bone matrix was synthesized at the interface of bone fragments and the composite.

IT **1306-06-5**, Hydroxylapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture

AB Transplantation of osteogenic cells with a suitable matrix is one strategy for engineering bone tissue. Three-dimensional distribution and growth of cells within the **porous scaffold** are of clin. significance for the repair of large bony defects. A nano-HAp/collagen (nHAC) composite that mimics the natural bone both in compn. and microstructure to some extent was employed as a matrix for the tissue engineering of bone. A **porous** nHAC composite was produced in sheet form and convolved to be a 3-dimensional **scaffold**. Using organ culture techniques and the convolving method, we have developed three-dimensional osteogenic cells/nHAC constructs in vitro. SEM and histol. examn. has demonstrated the development of the cells/material complex. Spindle-shaped cells migrating out of bone fragments continuously proliferated and migrated throughout the network of the coil. The **porous** nHAC **scaffold** provided a microenvironment resembling that seen in vivo, and cells within the composite eventually acquired a tridimensional polygonal shape. In addn., new bone matrix was synthesized at the interface of bone fragments and the composite.

ST HAp **collagen** matrix osteogenic cell organ

IT Prosthetic materials and Prosthetics
(ceramic, implants; three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture)

IT **Ceramics**
(prosthetic implants; three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture)

IT Animal tissue culture
Bone
Interface
Microstructure
Organ, animal
Transplant and Transplantation
(three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture)

IT **Collagens**, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture)

IT **1306-06-5**, Hydroxylapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(three-dimensional nano-HAp/**collagen** matrix loading with osteogenic cells in organ culture)

L76 ANSWER 42 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:496488 HCAPLUS
DOCUMENT NUMBER: 129:193675
TITLE: Preparation of a **chitin**-apatite composite by in situ precipitation onto **porous chitin scaffolds**

AUTHOR(S): Wan, Andrew C. A.; Khor, Eugene; Hastings, Garth W.
CORPORATE SOURCE: Department of Chemistry, National University of Singapore, Kent Ridge, 119260, Singapore
SOURCE: Journal of Biomedical Materials Research (1998), 41(4), 541-548
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Composites of chitin with calcium phosphate were obtained by in situ pptn. of the mineral from a supersatd. soln. onto chitin **scaffolds**. The chitin **scaffolds** were obtained by freeze drying to give a highly **porous** structure having a polar surface favorable for apatite nucleation and growth. The extent and arrangement of calcium phosphate deposits on the chitin and substituted chitin **scaffolds** were explored. Up to 55% by mass of calcium phosphate could be incorporated into chitin **scaffolds**. Deposits on the chitin surface were of a continuous apatite carpet nature while deposits on carboxymethylated chitin surfaces displayed a spherical morphol. Carboxymethylation of chitin exerts an overall inhibitory effect towards calcium phosphate deposition, but it provides for site-specific nucleation of the mineral **phase**. In situ pptn. can be an important route in the future prodn. of various polymer-calcium phosphate composites.

IT **1306-06-5**, Hydroxylapatite
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

IT **1398-61-4**, **Chitin**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)
RN 1398-61-4 HCAPLUS
CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Preparation of a **chitin**-apatite composite by in situ precipitation onto **porous chitin scaffolds**
CC **63-7** (Pharmaceuticals)
AB Composites of chitin with calcium phosphate were obtained by in situ pptn. of the mineral from a supersatd. soln. onto chitin **scaffolds**. The chitin **scaffolds** were obtained by freeze drying to give a highly **porous** structure having a polar surface favorable for apatite nucleation and growth. The extent and arrangement of calcium phosphate deposits on the chitin and substituted chitin **scaffolds** were explored. Up to 55% by mass of calcium phosphate could be

incorporated into chitin **scaffolds**. Deposits on the chitin surface were of a continuous apatite carpet nature while deposits on carboxymethylated chitin surfaces displayed a spherical morphol. Carboxymethylation of chitin exerts an overall inhibitory effect towards calcium phosphate deposition, but it provides for site-specific nucleation of the mineral **phase**. In situ pptn. can be an important route in the future prodn. of various polymer-calcium phosphate composites.

ST **chitin** apatite composite implant; pptn **chitin** apatite composite implant

IT Bone
(artificial; prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

IT Prosthetic materials and Prosthetics
Prosthetic materials and Prosthetics
(composites, implants; prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

IT Carboxymethylation
Nucleation
Precipitation (chemical)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

IT **1306-06-5**, Hydroxylapatite
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

IT **1398-61-4**, **Chitin** 72429-67-5
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

IT 52519-63-8, Carboxymethyl **Chitin**
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

L76 ANSWER 43 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:351802 HCAPLUS
DOCUMENT NUMBER: 129:32290
TITLE: Biopolymer **foams** for use in tissue repair and reconstruction
INVENTOR(S): Bell, Eugene; Sioussat, Tracy M.; Fofonoff, Timothy W.
PATENT ASSIGNEE(S): Tissue Engineering, Inc., USA; Bell, Eugene
SOURCE: PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9822154	A2	19980528	WO 1997-US21052	19971112
WO 9822154	A3	19981022		
W: AU, CA, JP				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9852616	A1	19980610	AU 1998-52616	19971112
AU 727696	B2	20001221		

EP 946127 A2 19991006 EP 1997-947568 19971112
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI
JP 2001510358 T2 20010731 JP 1998-523811 19971112
PRIORITY APPLN. INFO.: US 1996-754818 A 19961121
WO 1997-US21052 W 19971112

AB Single and double d. biopolymer **foams**, composite biopolymer **foams** including both single and double d. **foams**, and methods of prepg. these **foams** and composite **foams** are described. Also described are biocompatible constructs which include single or double d. biopolymer **foams** and extracellular matrix particulates and methods of prepg. these constructs. The **foams**, composite **foams**, and biocompatible constructs of the invention can be used in tissue repair and reconstruction. Examples are given for extn. of collagen from porcine fetus skin and prodn. of single d. **foam** from the extd. collagen.

IT **1306-06-5**, Hydroxyapatite **9005-32-7**, **Alginic acid 10103-46-5**, Calcium phosphate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biopolymer **foams** for tissue repair and reconstruction)

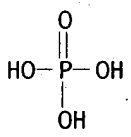
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 9005-32-7 HCAPLUS
CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 10103-46-5 HCAPLUS
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

TI Biopolymer **foams** for use in tissue repair and reconstruction

AB Single and double d. biopolymer **foams**, composite biopolymer **foams** including both single and double d. **foams**, and methods of prepg. these **foams** and composite **foams** are described. Also described are biocompatible constructs which include single or double d. biopolymer **foams** and extracellular matrix particulates and methods of prepg. these constructs. The **foams**, composite **foams**, and biocompatible constructs of the invention can be used in tissue repair and reconstruction. Examples are given for extn. of collagen from porcine fetus skin and prodn. of single d. **foam** from the extd. collagen.

ST biopolymer **foam** tissue repair

IT Medical goods
(adhesives; biopolymer **foams** for tissue repair and reconstruction)
IT Blood vessel
(artificial; biopolymer **foams** for tissue repair and reconstruction)
IT Chondrocyte
Extracellular matrix
Foams
Freeze drying
Gland
(biopolymer **foams** for tissue repair and reconstruction)
IT **Collagens**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(biopolymer **foams** for tissue repair and reconstruction)
IT **Biopolymers**
Elastins
Fibrinogens
Fibronectins
Glycoproteins, general, biological studies
Laminins
Peptides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biopolymer **foams** for tissue repair and reconstruction)
IT Dental materials and appliances
(cements; biopolymer **foams** for tissue repair and reconstruction)
IT Prosthetic materials and Prosthetics
(composites; biopolymer **foams** for tissue repair and reconstruction)
IT Dental materials and appliances
(implants; biopolymer **foams** for tissue repair and reconstruction)
IT Adhesives
(medical; biopolymer **foams** for tissue repair and reconstruction)
IT Ligament
(periodontal; biopolymer **foams** for tissue repair and reconstruction)
IT Liver
(tissue; biopolymer **foams** for tissue repair and reconstruction)
IT 9059-25-0, Lysyl oxidase
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(biopolymer **foams** for tissue repair and reconstruction)
IT **1306-06-5**, Hydroxyapatite 9002-89-5, Polyvinyl alcohol
9005-32-7, **Alginic acid** 9007-28-7,
Chondroitin sulfate **10103-46-5**, Calcium phosphate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biopolymer **foams** for tissue repair and reconstruction)

L76 ANSWER 44 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:750098 HCAPLUS
DOCUMENT NUMBER: 126:65296
TITLE: Porous hydroxyapatite reinforced with **collagen** protein
AUTHOR(S): Zhang, Qi-Qing; Ren, Lei; Wang, Chun; Liu, Ling-Rong; Wen, Xue-Jun; Liu, Yu-Hua; Zhang, Xing-Dong

CORPORATE SOURCE: Institute Biomedical Engineering, Chinese Academy Medical Sciences, Tianjin, 300192, Peop. Rep. China
SOURCE: Artificial Cells, Blood Substitutes, and Immobilization Biotechnology (1996), 24(6), 693-702 CODEN: ABSBE4; ISSN: 1073-1199
PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Porous hydroxyapatite (HAP) with certain porosity and pore size was prepd., and incorporated with bovine collagen protein. The compn. and structure of the HAP was confirmed by X-Ray Diffraction (XRD) and ICP. Collagen protein with low antigenicity was obtained from bovine tendon by enzyme digestion, and was then forced to fill in the HAP matrix to form composites. SEM, Mech. tests and in vitro degrdn. were performed. The test results show that first, HAP thus made has specific pore size and directions; second, mech. properties of the composites have been markedly improved; third, the in vitro degrdn. rate of the composite is almost the same as and mainly controlled by the degrdn. rate of collagen.
IT **1306-06-5**, Hydroxyapatite
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous hydroxyapatite reinforced with **collagen** protein)
RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

TI Porous hydroxyapatite reinforced with **collagen** protein
ST porous hydroxyapatite reinforcement **collagen** prosthetic composite
IT Prosthetic materials and Prosthetics
(composites; porous hydroxyapatite reinforced with **collagen** protein)
IT **Pore size**
(porous hydroxyapatite reinforced with **collagen** protein)
IT **Collagens**, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous hydroxyapatite reinforced with **collagen** protein)
IT **1306-06-5**, Hydroxyapatite
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous hydroxyapatite reinforced with **collagen** protein)

L76 ANSWER 45 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:758878 HCAPLUS
DOCUMENT NUMBER: 123:152991
TITLE: Biodegradable periodontal implant precursor
INVENTOR(S): Polson, Alan M.; Swanbom, Deryl D.; Dunn, Richard L.; Cox, Charles P.; Norton, Richard L.; Lowe, Bryan K.; Peterson, Kenneth S.
PATENT ASSIGNEE(S): Atrix Laboratories, Inc., USA
SOURCE: Can. Pat. Appl., 56 pp.
CODEN: CPXXEB
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CA 2117394	AA	19950329	CA 1994-2117394	19940707
AU 9466142	A1	19950413	AU 1994-66142	19940705
JP 07163654	A2	19950627	JP 1994-196132	19940728
EP 649662	A1	19950426	EP 1994-113193	19940824
EP 649662	B1	20020206		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
EP 1147781	A1	20011024	EP 2001-117430	19940824
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI				
AT 212866	E	20020215	AT 1994-113193	19940824
ES 2173102	T3	20021016	ES 1994-113193	19940824

PRIORITY APPLN. INFO.: US 1993-127642 A 19930928
EP 1994-113193 A3 19940824

AB A biodegradable implant precursor has a 2-part structure made of an outer sac and a liq. content. The implant precursor is composed of a biodegradable, water-coagulable thermoplastic polymer and a water-miscible org. solvent. When administered to an implant site in an animal, the implant precursor will solidify in situ to a solid, microporous matrix by dissipation of the org. solvent to surrounding tissue fluids and coagulation of the polymer. Methods of making the implant precursor, an app. for forming the precursor, and a kit contg. the app. are described. Also provided are methods of using the implant precursor for treating a tissue defect in an animal, e.g. for enhancing cell growth and tissue regeneration, wound and organ repair, nerve regeneration, and soft and hard tissue regeneration, for delivery of biol. active substances to tissue or organs, etc. Thus, a mixt. of poly(DL-lactide) (mol. wt. 65,000) 37 and N-methyl-2-pyrrolidone 63% was sterilized with .gamma.-radiation, confined between 2 saline-satd. **porous** polyethylene substrates for 6 min, and removed. The resulting implant precursor comprised an opaque, semirigid, flexible, 2-part structure with a gelatinous, semirigid outer **layer** and a more liq. core.

IT **1398-61-4**, **Chitin** **24980-41-4**, Polycaprolactone
25248-42-4, Polycaprolactone **26009-03-0**, Polyglycolide
26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]
26680-10-4, Polylactide **51063-13-9**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable periodontal implant precursor)

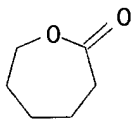
RN 1398-61-4 HCAPLUS
CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

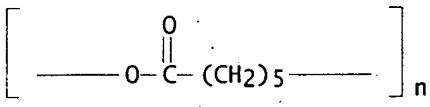
RN 24980-41-4 HCAPLUS
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

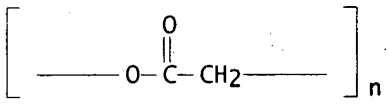
CRN 502-44-3
CMF C6 H10 O2



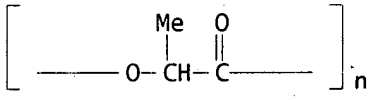
RN 25248-42-4 HCAPLUS
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



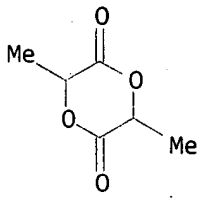
RN 26023-30-3 HCAPLUS
CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26680-10-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5
CMF C6 H8 O4

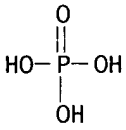


RN 51063-13-9 HCAPLUS
IT **1306-06-5**, Hydroxylapatite **7758-87-4**, Tricalcium phosphate **7778-18-9**, Calcium sulfate
RL: DEV (Device component use); USES (Uses)
(**support** substrate; biodegradable periodontal implant precursor)

RN 1306-06-5 HCAPLUS
CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

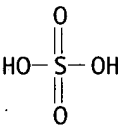
Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 7778-18-9 HCAPLUS
CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

CC **63-7** (Pharmaceuticals)
AB A biodegradable implant precursor has a 2-part structure made of an outer sac and a liq. content. The implant precursor is composed of a biodegradable, water-coagulable thermoplastic polymer and a water-miscible org. solvent. When administered to an implant site in an animal, the implant precursor will solidify in situ to a solid, microporous matrix by dissipation of the org. solvent to surrounding tissue fluids and coagulation of the polymer. Methods of making the implant precursor, an app. for forming the precursor, and a kit contg. the app. are described. Also provided are methods of using the implant precursor for treating a tissue defect in an animal, e.g. for enhancing cell growth and tissue regeneration, wound and organ repair, nerve regeneration, and soft and hard tissue regeneration, for delivery of biol. active substances to tissue or organs, etc. Thus, a mixt. of poly(DL-lactide) (mol. wt. 65,000) 37 and N-methyl-2-pyrrolidone 63% was sterilized with .gamma.-radiation, confined between 2 saline-satd. **porous** polyethylene substrates for 6 min, and removed. The resulting implant precursor comprised an opaque, semirigid, flexible, 2-part structure with a gelatinous, semirigid outer **layer** and a more liq. core.
IT **Pore**
(-forming agents; biodegradable periodontal implant precursor)
IT Phosphazene polymers

Polyamides, biological studies
Polyanhydrides
Polycarbonates, biological studies
Polyoxyalkylenes, biological studies
Urethane polymers, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable periodontal implant precursor)

IT Blood
(components, **support** substrates; biodegradable periodontal implant precursor)

IT Carbohydrates and Sugars, uses
Salts, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**pore**-forming agents; biodegradable periodontal implant precursor)

IT Plastics
RL: DEV (Device component use); USES (Uses)
(**porous**, **support** substrates; biodegradable periodontal implant precursor)

IT Thrombus and Blood clot
(**support** substrate; biodegradable periodontal implant precursor)

IT Glass, oxide
RL: DEV (Device component use); USES (Uses)
(**support** substrate; biodegradable periodontal implant precursor)

IT **Ceramic materials and wares**
(**support** substrates; biodegradable periodontal implant precursor)

IT Gelatins, uses
RL: DEV (Device component use); USES (Uses)
(**support** substrates; biodegradable periodontal implant precursor)

IT Animal tissue
(hard, **support** substrate; biodegradable periodontal implant precursor)

IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyamide-, biodegradable periodontal implant precursor)

IT 110-15-6D, Succinic acid, esters with polyoxyalkylenes 144-62-7D, Oxalic acid, esters with polyoxyalkylenes 463-84-3D, Orthocarbonic acid, esters, polymers **1398-61-4**, **Chitin** 9003-09-2, Poly(methyl vinyl ether) 9012-76-4, Chitosan **24980-41-4**, Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**, Polyglycolide **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26202-08-4, Polyglycolide **26680-10-4**, Polylactide 31621-87-1, Polydioxanone **51063-13-9** 52352-27-9, Poly(hydroxybutyric acid) 78644-42-5, Poly(malic acid) 102190-94-3
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable periodontal implant precursor)

IT 9004-34-6D, Cellulose, oxidized
RL: DEV (Device component use); USES (Uses)
(foam, **support** substrate; biodegradable periodontal implant precursor)

IT **1306-06-5**, Hydroxylapatite **7758-87-4**, Tricalcium phosphate **7778-18-9**, Calcium sulfate 9003-39-8, PVP 9004-62-0, Hydroxyethylcellulose 9004-64-2, Hydroxypropylcellulose

12597-68-1, Stainless steel, uses
RL: DEV (Device component use); USES (Uses)
(**support** substrate; biodegradable periodontal implant precursor)

L76 ANSWER 46 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1984:157808 HCAPLUS
DOCUMENT NUMBER: 100:157808
TITLE: **Porous** polymer moldings
PATENT ASSIGNEE(S): Toyo Polymer Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

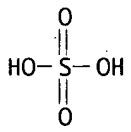
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58189242	A2	19831104	JP 1982-74174	19820430

PRIORITY APPLN. INFO.: JP 1982-74174 19820430

AB Thicks section of **porous**, permeable polymers, are manuf. by dissolving or swelling the polymer in an appropriate solvent or a mixt. of solvents and nonsolvents, mixing in extractable fillers, molding the compn. and treating with a nonsolvent or nonsolvent vapor to gel it, and extg. the fillers either before or after the molding. Thus, Hi Lac 1061 [89338-68-1] (polyester-polyurethane) 25, DMF 40, poly(vinyl alc.) [9002-89-5] 5, algenic acid [9005-32-7] 20, and CaSO4 10 parts were mixed, degassed, charged to a mold line with 2-mm layers of center polypropylene (void fraction 45%), which was than burst in water at 50.degree. for 6 h to gel the polymers and ext. DMF and fillers leaving a molding 20 mm thick, having d. 0.18 g/cm3, **porosity** 90%, and av. **pore** diam. 300 .mu..

IT **7778-18-9**
RL: USES (Uses)
(extractable filler, for manuf. of thick **porous** polymer moldings)

RN 7778-18-9 HCAPLUS
CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

TI **Porous** polymer moldings
AB Thicks section of **porous**, permeable polymers, are manuf. by dissolving or swelling the polymer in an appropriate solvent or a mixt. of solvents and nonsolvents, mixing in extractable fillers, molding the compn. and treating with a nonsolvent or nonsolvent vapor to gel it, and extg. the fillers either before or after the molding. Thus, Hi Lac 1061 [89338-68-1] (polyester-polyurethane) 25, DMF 40, poly(vinyl alc.) [9002-89-5] 5, algenic acid [9005-32-7] 20, and CaSO4 10 parts were mixed, degassed, charged to a mold line with 2-mm layers of center

polypropylene (void fraction 45%), which was than burst in water at 50.degree. for 6 h to gel the polymers and ext. DMF and fillers leaving a molding 20 mm thick, having d. 0.18 g/cm3, **porosity** 90%, and av. **pore** diam. 300 .mu..

ST **porous** polymer molding gelation extn; coagulation extn molding **porous** polymer; permeable polymer thick section molding

IT **Porous** materials and Cellular materials
(polymers, thick section manuf. by molding with coagulation and fillers extn.)

IT **Molding of plastics and rubbers**
(with coagulation and extn. of fillers, for thick, **porous** section)

IT **Urethane polymers, uses and miscellaneous**
RL: PREP (Preparation)
(polyester-, molding, **porous**, permeable, manuf. by molding, coagulation and filler extn.)

IT **7778-18-9** 9002-89-5 9004-67-5 9005-32-7 10043-52-4, uses and miscellaneous
RL: USES (Uses)
(extractable filler, for manuf. of thick **porous** polymer moldings)

IT 101-68-8DP, polymers with ethylene glycol and polyester 107-21-1DP, polymers with p,p'-diphenylmethane diisocyanate and polyester 9004-35-7P 89338-51-2P 89338-68-1P
RL: PREP (Preparation)
(molding, **porous**, permeable, manuf. by molding, coagulation and filler extn.)

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